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# THE EDISON MONTHLY



JUNE  
1911

THE NEW YORK EDISON COMPANY  
FIFTY-FIVE DUANE STREET - NEW YORK

# The New York Edison Company

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*"At Your Service"*

# *The Edison Monthly*

*June*

*1911*

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# Editorial

**The Edison Monthly**

Published by

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Secretary

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Time was when the placid cow, at the farmer's whistle, arose from the barnyard mud, to await the attention of the milker, who was not expressly arrayed for the process like Solomon in all his glory, in white canvas.

Anon the milk was poured from open pails into cans and jolted to the nearest town, on a wagon, whose front wheels leaned in, while the rear slanted outwards. And oddly enough, no one seemed any the worse.

Now the cow is distinctly to be handled with gloves, both literally and figuratively. While the farmer may rail at the nicety of city folk who insist on concrete floors, and baths for man and beast, the utmost cleanliness is now admitted to be necessary for milk which has to be transported a considerable distance.

The last word seems to have been said on the subject when we learn that the most approved cow is vacuum-cleaned. Ordinary washing and grooming will no longer do, for that stirs up dirt in the stable. Special vacuum tools for cows are

now being manufactured by the General Electric Company.

We can but fancy the feelings of the old-fashioned farmer; there must be very uneasy lying in some of the old country graveyards these days.



A recent issue of a prominent magazine devoted to business methods contains an article emphasizing the importance of correct office arrangement.

The particular instance quoted is of a manufacturer, who was losing money, although his selling price was 400 per cent above the manufacturing cost. An expert was called in who located the trouble in the poor office arrangement.



Reforms were carried out, following the expert's rule for the prime conditions "that apply to all offices," namely: 1—Light and Ventilation; 2—Accessibility; 3—Privacy; 4—Co-operation of Occupants; 5—Continuity of Operation; 6—General Impression.

For many years, central stations throughout the country have been insisting that good light and air were essential factors in business success. It is gratifying, however, to receive such emphatic confirmation from a source so entirely unexpected.



The enthusiasm for electric lights on the part of the heathen Chinese

has reached such a pitch in St Louis that the restraining hand of the law had to interfere.

One John Quong Lee, restaurateur, looked upon his neighbor's lights and saw that they were good. In his haste to acquire the same, Quong Lee omitted to confer with the supplying company, but like unto Homer in the Kipling poem, "What he thought he might require, he went and took."

The unfeeling judge fined him \$50 for wire tapping. Thus is the path of enlightenment fraught with trouble and meters.



A noteworthy contribution to electric vehicle development has just been announced in Boston.

Under the charge of Professor Dugald C Jackson, of the Massachusetts Institute of Technology, a year's research work will be made into the higher economies of the electric vehicle.

The result of such investigation, "impartial and authoritative," must be of the highest value to the industry and the public as well. The action of the Boston Edison Company in financing the research work is highly to be commended for its public spirit and enterprise. A more detailed account of the plans will be found in the following pages.



Elsewhere in this issue will be found an account of the electric police patrol wagon in use here in Manhattan, where it is giving its aid in enforcing law and order.

Since it is considered poor salesmanship to criticise the other fellow's goods, we did not call attention to the fact that at the time this electric was put into service, the manufacturers of another kind of motor car the precise nature of its motive power we do not mention -had one of theirs put on trial.

On its first trip it killed a man; after that it resided in "dead storage" for a while. This wagon, and it isn't an electric, is now to be returned to the manufacturers with a note of thanks.



In the face of our much-vaunted American progressiveness, it is rather remarkable that the educational possibilities of the moving picture are being neglected by the general public and are left to the attention of a few advanced "reformers."

It has been clearly demonstrated abroad that motion pictures can play a most important part in schooling. Improved methods of agriculture, for instance, are being taught in India by this means; chemical and biological processes are better demonstrated thus in a lecture room, before a fair-sized audience, than any other way; in fact new possibilities suggest themselves infinitely.

Yet, strange to say, although the United States is the native land of the motion picture, almost all of these strictly "educational" films are, up to date, of European production. Only on the other side has there been sufficient demand for this kind of moving picture to warrant their manufacture.





The Completed Cathedral of St John the Divine as Planned by the Architects, Heins and La Farge.  
It Required Twenty Years to Build the Small Portion Consecrated in April

# St John the Divine

**W**ITH impressive ceremony, and in the presence of the foremost church dignitaries and prominent laymen of this country, the Cathedral of St. John the Divine, inspiring and beautiful, even in its present unfinished state, was consecrated on April 19th.

The event was notable in the annals of the Protestant Episcopal Church, and in keeping with its great importance there were gathered for the occasion bishops from twenty-two of the dioceses in this country, a great host of churchmen and a thousand laymen.

At the appointed hour, the strains of the great electric organ pealed through the wonderful edifice and the procession began to move from the synod hall through the great unfinished crossing, and into the beautiful sanctuary. The surpliced choir led, singing the processional hymn, and was followed in order by the church and lay officials, including the presbyters, canons, archdeacons, visiting bishops, the bishop suffragan, and Bishop David H. Greer of the Diocese of New York, who conducted the consecration service and preached the sermon.

St John's is the largest church in this country, and ranks fourth in size among the world's cathedrals. It is surpassed only by St Peter's in Rome, the Seville Cathedral in Spain and the Duomo in Milan. St Patrick's Cathedral in this city, the only nearly church with which a comparison may be made, is hardly more than

half its size. Although the cornerstone was laid nearly twenty years ago, the only parts ready for consecration on the nineteenth were the crossing, the chancel, the ambulatory and the two memorial chapels of St Columba and St Saviour.

The cathedral is far from completion now, lacking not only the building of the nave and transepts of the edifice proper, but much of the decorative work of the choir, the sanctuary, the ambulatory and the Chapels of the Tongues.

The plans were drawn by Heins and La Farge. The finished building will have a floor area of 99,500 square feet; its tallest spire, built above the crossing, will rise from a base 100 feet square to a height of 425 feet. The ceiling at its highest point will be 118 feet from the floor; the length of the building will be 520 feet, the width, across the nave, will be 165 feet, and across the transepts 288 feet. There will be two towers at the western end, four entrance towers in the angles made by the arms of the cross, and from these the great central spire will rise. The fundamental style is Romanesque. Lake Mohegan granite is used for the exterior, and the interior is to be faced with a soft buff Minnesota limestone. The entire structural work is of masonry, not a steel beam or brace being used. The great granite arches are twelve feet thick at the base.

The lighting of the cathedral presented problems of unusual diffi-



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culty. After the scheme had been decided upon, the engineers were confronted with the task of putting the lights in place so they were of easy access for cleaning or renewing. This work was all designed by James Robert Moore, the consulting engineer, and the plans were worked out in the shops of I P Frink, the experiments lasting four months.

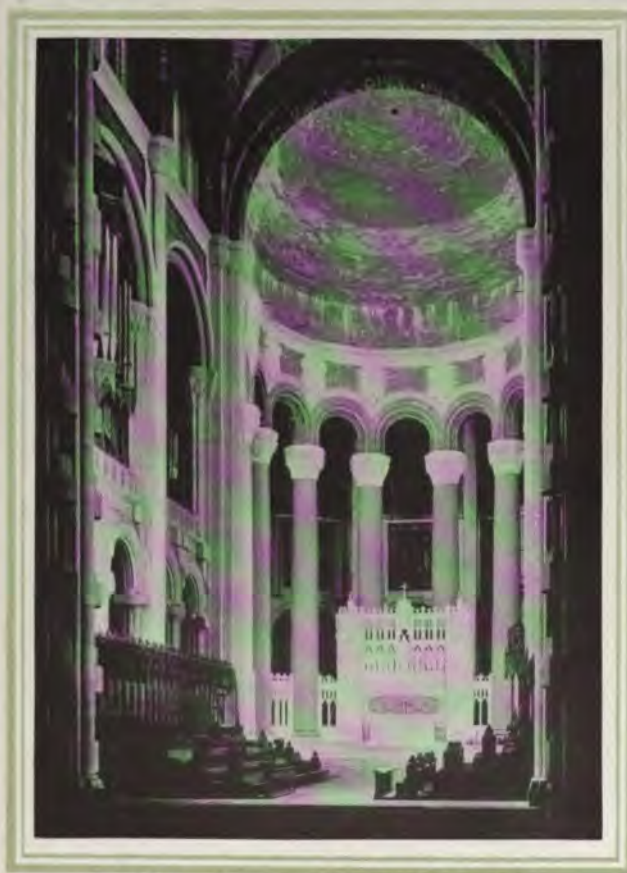
The beauty of the lighting and that which except for minor changes is permanent is to be seen in the chancel. As one stands in the nave and looks through the choir toward the reredos and the great granite

memorial columns, the place seems flooded with sunlight streaming in from all the windows.

The effect is obtained from a grouping of tungsten lamps on each side of the choir, placed behind the piers which reach to the great arch. Behind the sanctuary piers, eighty-watt gem lamps are used, seventy-two on each side. Connecting the sanctuary lights is an arch in which are set 104 lamps. These lamps are provided with mirror reflectors, of special design, and are so constructed they can be readily raised or lowered for cleaning or repairing.

By means of a cable and windlass the choir lights are lowered behind the stalls, without even breaking the circuit. With the sanctuary lights, each of the separate sections is lowered to the floor. In the original placing of the reflectors not a single piece of scaffolding was used. Men were swung in baskets from the high dome, and working in their aerial perches placed the bulbs in position.

The illumination is all controlled by buttons in a switchboard behind the choir stalls. By the use of dimmers and automatic switches, effects to harmonize with every occasion



Lighting of the Chancel, St John's Cathedral

can be produced. Added effect is produced by an arrangement of lamps concealed in the choir stalls. Over each of the twenty-one seats on either side of the choir is placed a bulb behind an amber-colored glass, which sheds sufficient light for the choristers to read their music.

High above the choir are four cler-

church as a memorial to **Lena Kearney Morton** by her parents. The instrument is built on both sides of the choir, high above the stalls. The solo and great organs are on the south side, above the console, and the bellows are driven by a twenty-five horse-power motor. The choir and swell organs and part of



Interior of St Patrick's Cathedral, Fifth Avenue, Between Fiftieth and Fifty-first Streets

estory windows of leaded amber glass. Behind each of these windows are fifty-four eighty-watt gem lamps, each in a prismatic reflector, which produce an effect wonderfully like the sunlight streaming in.

The great four-manual electric organ was built by the Skinner Company of Boston at a cost of \$65,000 and was given to the

the pedal organ are on the north side and are operated by a seven horse-power motor. There are one hundred and nine stops and nearly eight thousand pipes in the organ. Connected with the organ is an acousticon which transmits the music to the choristers in another building, as they are forming for the processional marches.



Exterior of St Patrick's Cathedral, Fifth Avenue and Fifty-first Street



## Famous Churches in New York

**T**HE settled idea of New York's bald and unregenerate commercialism is effectually unsettled by the very real interest manifested by thousands on such an occasion as the recent consecration of the Cathedral of St John the Divine. New Yorkers, one cannot but be convinced, are not only interested in their many and beautiful churches, but take a great deal of just pride in them. And there is indeed much of a unique character which yet remains to be pointed out regarding many of these edifices, both old and new.

New York now shares with London alone the distinction of having two great cathedrals. Well merited as is the praise lavished upon the superb structure on Morningside Heights, there are notwithstanding many who find their fondness for the beautiful cathedral on Fifth Avenue undiminished. Not gigantic like St John's nor imposing in so grand a sense, St Patrick's holds still that graceful and wonderful charm which few such buildings, even in the pure Gothic, possess.

After years of persecution in the days prior to the Revolution and after years of poverty and misrepresentation which followed, the Catholics of New York succeeded in laying the cornerstone of this cathedral in 1858. From the standpoint of present-day values, it seems incredulous that the lot in question, including the entire block extending from Fifth to Madison Avenues, should have been sold to the trustees by one Francis

Cooper for \$5,500. Still this was back in 1829.

Possibly the fabulous purchase of Manhattan itself did not seem then so inconceivably remote. The completed structure cost \$3,000,000 and was consecrated in May, 1879.

Mention has been made of the persecution during the ante-Revolutionary period. A little company of Catholics had then succeeded in holding service secretly in the house of a German gentleman on Wall Street. The fire following Washington's retreat put a decided end to all this. However, after the inauguration of religious toleration in '77 they resumed their worship openly. Some time after we find these pioneers utilizing a carpenter shop and planning the erection of a church which materialized into old St Peter's, on Barclay and Church Streets.

A curious fact that attaches to the dedication of this, the first Catholic church in New York City, is worthy of mention. The day chosen in the year 1786 was November fourth, the feast of St Charles Borromeo, in honor of Charles IV, King of Spain, who had personally given \$10,000 toward the project. The Spanish and French consuls (New York, it will be remembered, then being the capital) also contributed very substantially.

In the crypt of this old church are buried the founders of some of New York's oldest families and in its stately and quiet simplicity live on the memory of those who in difficult days bore witness of true Catholics.

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Interior Church of the Transfiguration

Of hardly less interest historically is the parish of old Trinity, the church to-day being the third built upon the site. The first was destroyed by fire and the second torn down to make place for the present edifice, which dates from 1846. The old graveyard is undoubtedly one of the city's great curiosities, its ancient stones telling many a story of the earlier days of the municipality.

The charitable work done by this church is notably commensurate with its income, great as this is. The mother church does much toward the support of the several Trinity chapels located in widely separated parts of the city. In addition to this it maintains a most excellent system of parish schools, and also supports an equally effective system of industrial schools. All this, besides providing for the sick and

poor, help to other churches, etc. The more searching the investigation the deeper becomes the conviction that were these projects of Trinity church abandoned there would follow in many quarters a dismay and confusion which would continue long before a readjustment

could be effected.

Back in the fifties the rector of one of the fashionable Fifth Avenue churches, suddenly learning that George Holland, whose funeral he was about to conduct, was an *actor*, threw up his hands in horror and urged upon the family and friends the advisability of seeking instead the "little church around the corner." The church referred to was the Transfiguration, which has ever since retained the name so conde-



Interior of Old St Peter's in Barclay Street

scendingly applied, and which became the church home of the acting profession from that time on.

Standing well back from the street on spacious grounds the church is not easily seen from the Avenue and, indeed, in the summer time a profusion of foliage almost hides it. After entering the quaint doorway at the end of the winding walk, the visitor finds himself in an interior at once inviting and unique.

covers the charming Lady Chapel, where the Sacrament is reserved and where worshippers are to be found at all times. The church is always open, and we may be sure has a particularly warm place in the hearts of those who know it.

Grace Church, largely through the personality of the late rector, Dr Huntington, enjoys a similar reputation. One incident will suffice to show his breadth of sympathy.



**Church of the Transfiguration on East Twenty-ninth Street, Popularly Known as "The Little Church Around the Corner"**

On the right the long nave extends beneath the low arched roof to the marble chancel with its famous altar. From here reaching again to the right is the one transept lined with its many beautiful paintings and boasting the celebrated window in memory of Edwin Booth. On retracing one's steps he passes the exquisite baptistry and mortuary chapel, and at the extreme west end of the church dis-

On the first anniversary of the Kishineff massacre, thousands of recently arrived Russian Jewish emigrants, together with thousands of their brethren who had been longer on American soil, were marching up Broadway, a silent throng of deeply grieving men and women, almost entirely wage-earners. Just as the column approached Grace Church Dr Huntington appeared bare-headed



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at its portals and remained there until the people had passed, while the bell tolled from time to time

The well-known out-of-door pulpit which was dedicated last June is in this man's memory. The boy choir at Grace is without doubt the most superb of the kind in the city. The school maintained for these boys was the first opened in America.

The first church in New York City ever lighted by electricity is that of St Francis Xavier, belonging to the Jesuit Fathers. The formal opening was delayed for over a year by a fire resulting from carelessness with the wiring.

The architecture and mural decorations are both exceedingly elaborate, the former being the classic Romanesque. The exterior is of granite. A colossal bronze statue of St Francis occupies the central niche over an imposing portico. The interior is an exceptional blending of fine marbles and rare paintings. The latter, including the celebrated stations, are



Exterior, Grace Church, to the Right is the Latest Addition, Huntington Close, an Open-Air Pulpit

by Lamprecht. In connection with the church is the college of St Francis Xavier, also conducted by the Fathers.

The great church of the Paulist Fathers at Sixtieth Street and Columbus Avenue, is one of a number of the city's truly rare sights of which little is usually known. Extending back 285 feet from the two massive towers fronting the Avenue, the edifice cannot but attract notice.

In true Byzantine spirit, the interior presents a richness of color and ornamenta-



Interior, Grace Church. The First Choir School in this Country was Started by Grace Church

tion little hinted at by the bare, ponderous walls to the passer-by.

Upholding the great arches of the nave, two rows of large pillars carry the eye immediately to the chancel, which without doubt is one of the most beautiful on this side of the Atlantic. The high altar together with the two side altars are the work

heightened by altar pieces of great beauty by Win L Harris, the celebrated mural painter who, it will be recalled, had in charge the decorations of the recent reception of the Catholic Club to Cardinal Gibbons. Mr Harris has devoted his life to ecclesiastical art and makes his home at the community house adjoining the



**Night View in City Hall Park, Showing the City Hall to the Left, and the World Building at the Right**

of the late Stanford White, the rare marbles and the dull bronze of the canopies blending admirably with the subdued tones of the frescoes.

As is usual in churches of such proportions a series of small altars, many of them exceptionally fine, extend down both sides to the entrance. The effect of these is considerably

church. A large painting over the entrance is also the work of this artist.

The clerestory is set with a series of superb windows which, including the three backing the chancel, are by the late John La Farge. Numbers of statues of great value complete what is, in some ways, the finest church interior in New York.



The Hilliard Building, John and Dutch Streets. Recently Completed by the Thompson - Starrett Company. Howells and Stokes, Architects. Edison Service is Used Throughout

# The Hilliard Building

**L**IGHT-HEAT-POWER: all three are supplied the Hilliard Building, at John and Dutch Streets, from the mains of The New York Edison Company. From the first stages of construction to the completion of the building, electricity was employed. In excavating for the foundations, in hoisting the steel girders, in driving the air compressors for the drills and riveters, and even for the heating of the temporary construction shanties, the versatile current was best. Now that the building is completed, current is to be used for the operation of the permanent machinery.

This structure is, in the language of the trade, a class "A" office building. It is sixteen stories high and will be devoted almost entirely to insurance interests. It is the first of the downtown buildings in which the old flat-top roof is done away with. In its construction the contractors established a record for speed. The first girder was placed on October 24th and within five and a half months tenants were moving in. By the time the building was ready for occupants ninety per cent of the office space had been rented.

The first three stories are contained in Corinthian order and executed in limestone; the other thirteen stories are in Roman brick and terracotta. A special feature of the building is the handsome crowning, a radical departure from the old flat roof building seen so often downtown.

This architectural feature constitutes practically a seventeenth and

an eighteenth floor and under the peaked roof is placed all the machinery of the building. Here, at the top of the shafts, are the motors which operate the five elevators. The four passenger elevators are lifted by motors with a capacity of 2,600 pounds each, and the freight elevator by a motor with a capacity of 6,000 pounds. Nearly 4,000 incandescent lamps and 185 horse-power have been installed.

## Emergency Work

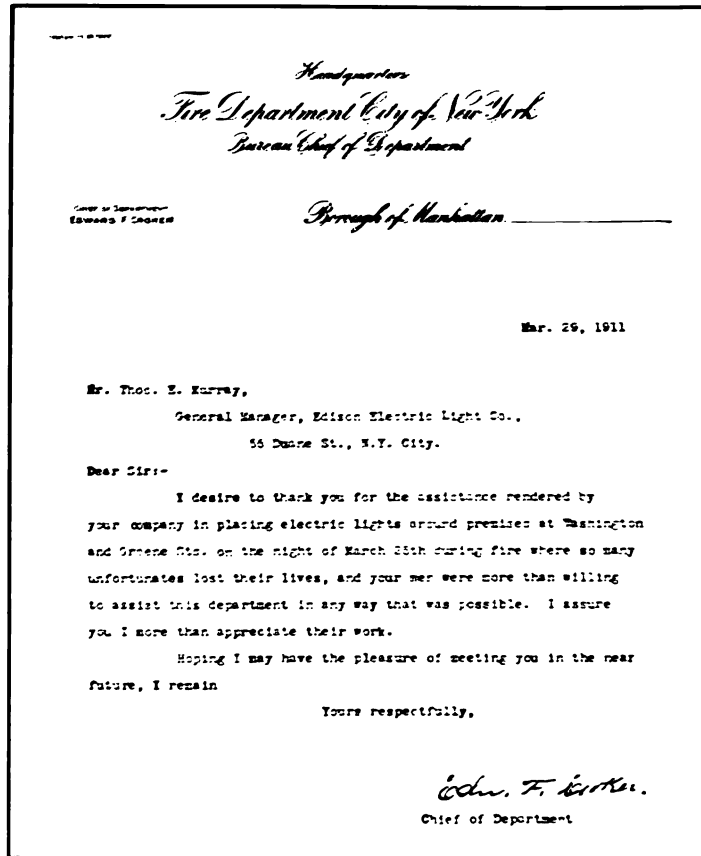
**I**N the rush of news following the disastrous fire at the Asch Building, the part played by electricity in the rescue work has been largely overlooked by the daily papers.

The first ambulance to arrive at the fire was an electric from the New York Hospital. Its first trip was made in record time, with several of the victims, returning to the scene with four more physicians to give aid to the injured.

Police reserves were rushed to Washington Place in the electric police patrol attached to the Twenty-third Precinct; while the search for the injured was carried on by aid of the arc lamps which were strung by The New York Edison Company's emergency crew. It is in recognition of this service that Fire Chief Croker wrote commending the Edison men. Since the famous fire-chief has resigned from the Department, this letter is of unusual interest, for it is perhaps the last of the kind he sent.

As readers will recall, the fire broke out late on a Saturday afternoon, well on towards six o'clock. Hardly

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had the seriousness of the blaze become known than the Edison emergency crew was on the field. The chief of the Distribution Department had already arrived at his home, but telephoned orders that everything needed was to be done.

The emergency lights were connected on the street poles and the wires strung so that arc and incandescent lamps could be placed where they were most needed inside and outside the building. Late as the fire started, half an hour after darkness fell the searching was being carried on by the lights provided by the emergency crew.

### Three New Apartment Houses

ONE can fancy some historian of social customs, a century or so hence, writing of our own day: "A significant development of this period was the giving up of their own homes by New Yorkers, who then took quarters in the large apartment buildings. This tendency foretold future—"; but just here, being uncertain of the real significance of the movement ourselves, we shall have to leave each reader fill in the sentence to suit himself.



The illustrations present three recent examples of the splendid new structures which are now building throughout the city, uptown and downtown, east and west. Walking up and down a mile of stairs is re-

placed by living all on one floor. How far from the ground that may be no longer matters, for the elevator bridges the distance.

In exchange for the ownership of one house, with its burdens as well



**Millicen Dollar Apartment at the Corner of Seventy-sixth Street and Park Avenue Edison Service Used for 3,500 Lights and 100 Horse-power**

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as its advantages, there are all the conveniences which the American architect especially knows so well how to provide.

Whatever effect apartment house life may afterwards be found to have had upon the people of to-day, its growing popularity is one of the most notable features

of New York City in recent years.

It so happens that all three of the buildings shown here are owned by the same man, Mr George F Johnson, Jr, were planned by the same architects, Blum & Blum, and have identical electric supply, Edison Service for 3,500 lights and 100 horse-power apiece.



Apartment Recently Completed at the Corner of Broadway and Eighty-ninth Street. Edison Supply is Used for 3,500 Lights and 100 Horse-power



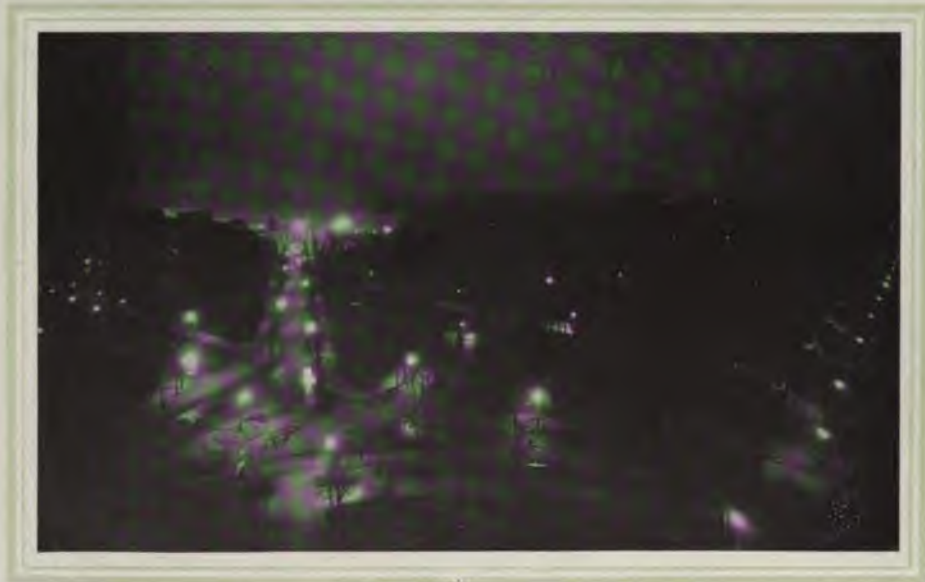
**Apartment at West End Avenue and Ninetieth Street**



## Municipal Lighting Here and Abroad

IN 1697 the aldermen of the city of New York were charged with enforcing the duty that "every seventh householder, in the dark time of the moon, should cause a lanthorn and candle to be hung out of his window on a pole—the ex-

lighting here in America, with the exception of our principal cities, is of its lack of regard to proper uniformity. It is held that municipalities frequently do not discriminate between streets which by their nature demand a great deal of light and



Night View in Berlin, Taken from the Column of Victory in the Tiergarten. German Lighting and Street Fixtures are Among the Best to be Found in Europe

pense of which to be divided among the seven families."

It is indeed a far call from this to the condition of affairs to-day. However, there is a considerable interest displayed in the various methods of street illumination now employed. And authorities on the subject are bringing to the attention of American cities the systems in vogue in various European municipalities.

The chief criticism made of street

those which require a lesser quantity.

One authority puts it, "We try to carry out the American theory that all men and things are free and equal." That is, frequently the lighting is spread out over as large an area as possible for fear of hurting somebody's feelings, rather than illuminating streets in a way commensurate with their relative importance.

The practice in England and on the continent is to provide enough

light to read a paper by. A traveler is able to peruse his Bædeker every foot of the way by the aid of the street lights alone. This is also true of many of the prominent thoroughfares in New York City. The English streets, regarded as of distinctly secondary importance, are as well lighted as ordinary streets in smaller American cities.

Moreover in Europe, lamps are not

In fact, in some states there is such ridiculous regulative legislation imposed on central stations that anything in the way of improvement is almost impossible without special legislative enactment.

For instance, in some states, the revenue a central station may derive per lamp is fixed regardless of the nature of the unit. Under such circumstances it is obvious that all



**The Same View by Day.** This Shows the Streets Radiating from a Central Point, Now Being Advocated for American Cities. A Similar Scheme Was Presented by the City Plan Committee of the New York Municipal Art Society. At the End of the Avenue to the Left the Brandenburg Gate is Seen

scattered so that there is a great blaze of light here and there, but distribution of light is the main thing sought. The use of diffusing globes is universal.

In many sections of America at the present, street lighting is anything but a business proposition, and the real commercial needs of the municipality are very seldom taken into intelligent consideration.

illumination of high efficiency is out of the question unless specially provided for.

The way in which architectural details are brought out in the German photographs given here shows the superior quality of the illumination used there.

-----  
"Do not think of your faults, still less of others' faults."—*Ruskin*.

### Fifth Avenue Window Lighting

RECENTLY, the proprietors of the beautiful shops along a certain section of Fifth Avenue decided to concentrate their efforts in a movement for artistic lighting of their show windows, the lights to be kept burning up to eleven o'clock at night.

With this end in view their windows

were equipped with the newest and most efficient form of lighting. Different methods were applied for the various kinds of merchandise to be displayed, in each case, the method being adopted that would show the particular kind of goods to the best advantage.

Two of the best examples of show window lighting and artistic arrangement of merchandise are shown in the pictures which accompany this article.



Window Lighting of Thorley's Establishment at Fifth Avenue and Forty-sixth Street



They are very unlike in character, entirely different methods of lighting therefore being employed.

The florist's window is that of Thorley's, at Fifth Avenue and Forty-sixth Street. The lighting consists of forty-watt mazda lamps in opal balls and the same lamp used in trough mirror reflectors. This is

254 Fifth Avenue, the leading dealers in Japanese goods. What seems to be a remarkably good oil painting of a cataract done in panels, is in reality a most extraordinary piece of Japanese hand embroidery, perfect even to the minutest detail. The panel effect is due to the fact that it is a folding screen. The proper light-



**Remarkable Lighting of the Yamanaka Japanese Art Store at 254 Fifth Avenue**

the more elaborate of the three florists' shops maintained by Mr Thorley, and the new form of lighting used there has met with such success that he is now contemplating its adoption for his other stores.

The photograph of the Japanese art shop window is perhaps one of the most wonderful ever taken. It is that of Yamanaka & Company,

ing is procured by the use of eight-candle-power frosted lamps, used in green metal half shades. In addition, there is an attachment plug, which is used now and then for illuminating a Japanese lantern.

"It's a good thing when a man knows what he pretends to know." — *David Grayson.*

## The Electrical Testing Laboratories

ONE of the most interesting current-consumers in New York is a novel establishment, known and recognized throughout the scientific world as the Electrical Testing Laboratories. More than fifteen years ago this institu-

The site of this unique business is on the uptown waterfront, opposite Blackwell's Island, in a plain brick building. In this, all kinds of tests, from those of incandescent bulbs, electric machinery and parts, electric safety devices, to the more



The "Life Test" Room. There are 7,000 Sockets for Lamps of all Possible Voltage. About 3,000 Bulbs are Under Test on an Average Day

tion was started to test out various electric devices and to give an impartial and expert report on their merits. Since then other departments, not related to the electrical industry, have been added, such as that for testing paper; but the old name had become so well established that it has been decided to retain it, although it no longer indicates completely the scope of the work.

recent brick, coal and paper experiments, may be found.

Probably the most picturesque sight of all is the "life test" for lamps. There in a room about a hundred and thirty feet by twenty-five are racks upon which are incandescent bulbs of all sizes and descriptions burning away day and night. There are seven thousand lamp sockets there, and the average

number in use each day is three thousand. During the year as many as 18,000,000 lamps are inspected and tested.

Next come tests with the photometer. The complicated instrument in use to-day is only the logical development of the old greased screen with a lighted candle placed on either side. The light from a standard lamp and that under test is reflected from the two sides of a screen placed between them. Mirrors at an angle of thirty-five degrees show both sides of the screen at once to the operator. The screen can be moved on a track until the two reflected lights are of equal brightness. A pointer affixed to the screen indicates the candle-power of the lamp under test upon a scale which is marked upon the track.

One of the photometers used for testing arc lamps is of the integrating type and was invented by Professor Matthews of Purdue University. This is somewhat more elaborate, for it is necessary to measure the light in all directions in order to determine its distribution and total quantity. This is done by use of a series of mirrors forming an entire circle, in the center of which is placed the lamp under test.

Arc lamps are also measured by the so-called sphere photometer. This is a hollow sphere, more than six feet in diameter, in which the lamp is hung. The interior is painted with a diffusing white, and the light is reflected out through a tiny piece of milk glass. The direct light is cut off, so that which reaches the eye through the window is reflected light and represents an average of the candle-power in all directions. This is used



Matthews Integrating Photometer for Measuring the Distribution of Light from Arc Lamps

in conjunction with the regular photometer to give the standard light for comparison.

There is still another method for measuring arc lamp distribution, known as the Sharp-Millar arc lamp photometer. This is a machine which looks not unlike a small traveling crane, with a funnel on the arm. Above the fulcrum of this arm the lamp is suspended and is rotated by a small motor. The arm can be swung about in all vertical directions, so that the light at any angle can be measured. This is done by means of the reflected light from a milk-glass disc. The funnel and screens are used merely to cut off the light from other sources. On a stationary platform is an ordinary photometer, the standard light in which is compared with that reflected by mirrors from the glass disc.

This machine, complicated as it may seem at first, is a much simplified form of the apparatus previously used here and in other laboratories. As originally invented, the arm of this distribu-



## The Edison Monthly

tion photometer was heavily built of structural metal, and the operator was swung around. This made the machine heavy and expensive. The next improvement was to place the arc lamp itself on the end of the beam. While that was better, still the latest arrangement, which is to have both lamp and operator stationary, while only the small reflecting disc is swung, has proved most satisfactory.

A useful branch of the laboratory work is that devoted to testing the strength of structural materials. This is done by both tensile, transverse and compression tests. In these tests a motor-driven machine is used, which is capable of producing a maximum stress of 200,000 pounds, either compressive or tensile, depending upon the direction of motion of the machine, i.e., whether up or down. This machine is used to determine

the breaking point of iron, steel, bricks, columns, cement beams, and so forth.

What is known as the torsional test for steel to be used for shafting is also made by the aid of a motor-driven machine. In this machine a torsional stress of 230,000 inch pounds can be produced and the stress necessary to distort and break the shafting can be ascertained.

Equally valuable are the tests for various electrical apparatus, among them, high potential tests for suspension and trolley strain types of insulators. A severe test of this kind is made on the rubber gloves used to handle wires carrying high-voltage currents. Here it is absolutely necessary for the safety of the workmen that the rubber contains no defects. The glove is filled with water, almost to the top, and then

suspended in a tank. A metal chain hangs in this glove, which in turn is part of a circuit on which is a current of 10,000 volts. The thin rubber is the only resistance between the positive and negative ends of this line, so that the full electrical pressure is brought to bear on the



Coal Testing Department. Chemical Appliances on the Right, While Heat Test Apparatus May be Seen to the Left. On the Table is a Bomb in Which Small Quantities of the Coal are Burned. The Bomb is Immersed in the Water Tank

glove under test, and any defect will be quickly apparent.

Elsewhere transformer oil is subjected to high electrical stress, while in another section of the laboratories meters and other electrical apparatus and instruments are examined. This department of the laboratories is not infrequently called upon by central station companies throughout the country to settle disputes regarding meter accuracy. In case the tests made locally are not satisfactory to either party involved, the instrument in question is sent to the laboratories, whose verdict is accepted by all concerned as impartial and final.

A recent addition to the laboratories' activities has been a division for ascertaining the quality of paper. These tests fall into three general classes. First comes the microscopic, in which is shown the kind of fibre present in any sample. In this way it is quickly seen whether the paper is of the quality ordered. The second group determines the breaking and bursting points and other physical properties of the various samples and their ability to withstand wear.

The third set comprises chemical tests, the object of which is to determine the amount and quality of the filling material and the presence of any deleterious substance. This test is of particular use to jewelers, whose wares would be injured should any oxidizing agent be present in their wrapping paper.

The coal-testing department is of fundamental service to central stations which use coal as their source of energy. Coal usually varies in heat units from 9,000 to 15,000 per pound, while the proportion of ash



**Test for Linemen's Rubber Glove. The Glove is Filled With Water and Suspended in the Tank. A Chain Hanging in the Glove is Part of a Circuit on Which is a Current of 10,000 Volts. The Thin Rubber is the Only Resistance Between the Ends of this Line**

ranges from four to twenty per cent. The manufacturer must know what quality he is buying.

In tests of coal, the component materials are ascertained by chemical analysis, and the number of heat units per pound is determined by burning very small samples in a specially constructed bomb, which is placed in a vessel of water. The number of heat units is reckoned from the rise of temperature in the surrounding water, the weight of which has been very accurately measured.

Another interesting process is an efficiency test of a high-tension insulator. The object of the test is to determine the point at which the insulator becomes unsafe for use. As the resistance of the insulator is lowest when wet, a miniature rain-storm is used, water being sprayed upon it at an angle of forty-five degrees above the horizontal. The amount of water is carefully regulated so that the precipitation is exactly one inch in five minutes. This is intended to represent the conditions which would obtain during a heavy thunder-storm, the water being thrown at an angle to represent the action of a heavy wind.



For the electrical test one electrode is bound round the "tie wire groove" of the insulator, the other about the pin on which the insulator rests. Current is then applied at a low value and the electrical pressure gradually raised until an arc forms between the electrodes around the insulator. The voltage at which this arcing occurs is the limit of endurance of the insulator. These insulators are used for high-tension lines with a working pressure of from 60,000 to 80,000 volts.

### Moving Pictures for Educational Use

**W**ITHIN the last few weeks, the educational possibilities of moving pictures have been placed strongly before the public by no less persons than Edison himself and Dr Henry Leipziger, in charge of the free lecture courses under the city Board of Education. At a public dinner given for Dr Leip-

ziger on May 4, he suggested the introduction of moving pictures into the lecture courses, both for their direct educational value, and also to draw away the public from the poorer class of moving pictures shows.

A few days before that, Edison, speaking before the school board of Orange, stated his belief that moving pictures will eventually be a part of the regular class-room paraphernalia along with charts and blackboards. "I can teach more geography in fifteen minutes with the moving pictures," said Mr Edison, "than the schools as now equipped can teach in as many days. In a few years every grammar and high school and every church in the country will have a moving picture machine in it."

### The "Wonderful Pump"

**T**HE "Wonderful Pump," an invention of Dr J Nelson Walter of 18 Oak Street, will be placed on the market within a few months. It is intended for the work now done by the suction or so-called centrifugal pump, and although almost insignificant in size it has a remarkable capacity. It will pump water, spirits, beer, oil, glue, paint, mud, acids, molasses, and in fact every "pumpable" substance.

Dr Walter demonstrates the capacity of his pump with a two-inch model, which weighs fifteen pounds,



Machine Used in the Torsional Test of Steel Shafting. A Strain of 230,000 Inch Pounds Can be Produced. One End of the Shafting is Fixed in the Vise to the Right. The Other End is Placed in a Motor-Driven Wheel as Shown in the Center of the Picture



**The Wonderful Pump. Comparative Sizes of the Wonderful Pump and a Watch. The Pumping Apparatus is all Contained in the Horizontal Section Between the Rings**

occupies a square foot of space, delivers 7,200 gallons of water per hour at a distance of thirty-seven feet, through a seven-eighth-inch outlet, and is operated by a small motor. An old-type pump to do the same amount of work would occupy not less than eight square feet of floor space and would weigh anywhere from 250 to 500 pounds.

In his vest pocket the inventor carries a small model, which he uses to demonstrate comparative capacities. It is not larger than the oil cup of the old pump which he uses in the demonstration.

Externally the "Wonderful Pump" looks like one or more of the sections of the pipe used for intake or discharge. It is in three sections, the first an elbow through which the water is drawn, the second a jacket for the screws and the diaphragms, and the third section another elbow carrying the water into the conveyors.

The screws are auger-shaped discs, attached to a

revolving shaft, which runs through the pump and is connected with the motor. The screws whirl the water about, and to offset this perforated diaphragms are set in the pump. They are immovable, and as the screws force the water around the diaphragms "straighten" it and send it forward without loss of power.

The screws, diaphragms, and the shaft are of a hard metal, made by a secret process. They are so constructed they do not come in contact, and consequently there is little wear and tear. Because of its economy of space the pump seems destined to find favor with steamship companies and it is not improbable the pump will find a place as part of fire department equipment.



**The Pump in Action**

## Concerning Electric Vehicles

**N**EWs comes from Boston of a very valuable contribution to the development of the electric vehicle industry, to be undertaken under the charge of the Massachusetts Institute of Technology, popularly known as "Boston Tech."

The Edison Illuminating Company of Boston, through the initiative of its president, Mr C L Edgar, has made an appropriation which will finance a year's research into the higher economics of this industry. Professor Dugald C Jackson, of the Institute of Technology and president of the American Institute of Electrical Engineers, will have charge of this novel work.

The "Tech" authorities as well as the Edison Company are convinced that such an investigation, including

the getting together of data, the discussion of various tests, et cetera, by an impartial institution will prove of great value in forming public opinion and in pointing out on a scientific basis just what may be expected of the electric vehicle for both commercial and pleasure service alike.

The following are some of the points to be included: the cost of operation and of maintenance under intelligent treatment; the cost of horse and gasoline vehicle operation as compared with electric; the merits of various tires and roadways; the result of the operation, under the auspices of the Electric Vehicle Association of America, of the public electric garage of the Boston Edison Company.

Desirable types of daily logs will also be investigated, the economics of delivery routes, and the grouping of information now in possession of various manufacturers. Different cities in which the electric vehicle has acquired great importance, together with vehicle factories, will be visited by the investigators.

Professor Jackson points out in answer to a fear of injury to manufacturing interests, that the recent phenomenal progress of electricity has been due to a willingness on the part of all concerned to share in the



**Preparing to Lift a Six-Ton Safe in Front of the Broadway Office of The New York Edison Company. Hoisting Done by the Seven Horse-power Motor on the Electric Truck**

benefits of scientific discovery

A number of manufacturing houses have signified their willingness to join in the work. Research of a desultory sort has been carried on by several of these manufacturers for some time while several concerns in New York City using the commercial vehicles have been cited as having established record systems of high value



## Hoisting by Electricity

**H**OISTING is one of the cleverest

feats which can be managed with the electric truck. When a motor is attached to the wagon, the current necessary being supplied by the storage battery, a large amount of heavy lifting can be performed. Ordinarily this would take several men with a hand winch, while the hoisting itself is done much more quickly by power.

The additional convenience of the electric truck hoisting arrangement is that the lifting can then be done anywhere that the wagon can be driven. An electric truck can easily do thirty miles and finish with a job of heavy hoisting at the end.

A recent example of this was the raising of a six-ton safe to one of the upper floors of the Broadway office of this Company. The safe in ques-

The Safe in Mid-Air. This Six-Ton Weight was Raised at the Rate of Two Feet a Minute. So Dense was the Crowd that the Traffic on Broadway was Held Up Till the Safe Had Finished its Journey

tion was brought from Thirty-ninth Street on one of the Company's five-ton electric trucks, which had as part of its equipment a seven horsepower motor, located under the driver's seat. This was used to wind up the drums to which the hoisting tackle was attached.

The safe was raised at the rate of two feet a minute, a very creditable speed considering the weight of the steel to be lifted. The work was accomplished without the slightest mishap, save that the sight drew such a crowd that the traffic along Broadway was temporarily blocked.

"The lion and the lamb lie down together, but generally only one of them ever gets up."—*The Caldron*.





The Electric Police Patrol Attached to the Twenty-third Precinct. It is Called Out About Ten Times Each Day. This is a G V Wagon

### An Electric Police Patrol

**A**BURLY policeman trundling a peddler's pushcart on which lay a helpless "drunk," or a gang of small boys gleefully dragging a grocer's wagon in which a blue-coat had some thief or other law-breaker, was a common sight in this city less than twenty years ago. There were no patrol wagons in the police department, and the only means the man on post had for conveying his prisoner to the lock-up lay in the requisition of some cart or wagon. Nor did the city pay the owner for the accommodation.

In those days the man who had celebrated too freely was almost immune from arrest, unless he was in a state of utter helplessness. In that case, the first Greek or Italian peddler who happened along found his pushcart impressed into service, and

the blue-coat without much ceremony hustled the helpless prisoner to the station-house. Sometimes a wheelbarrow was used and once a baby carriage.

For the arrest of a desperate law-breaker, a more secure conveyance was required, and oftentimes a passing grocery wagon was commandeered. At night, wagons which were left in the street, in lieu of being taken to livery stables, were im-

pressed, and it was under such circumstances the small boy found a task which pleased him mightily. Horses of course, were not available, so the policeman, after making his prisoner secure, summoned a crowd of volunteers. Some pulling, others pushing and all hurling jibes and jests at the man inside, the trip was made to the lock-up.

All sorts of schemes were resorted to by the "man on post" to dodge the disagreeable necessity of making trips to the "lock-up" with minor offenders. One of the cleverest was worked successfully for many years in the precinct covering the notorious "Five Points." The meeting-place of the "Points" was also the juncture of each of five separate police posts, and on one of the corners was a fair-sized vacant lot.

Trouble was always breaking loose in the neighborhood, and the total

of prisoners brought in by policemen sometimes ran as twelve or fifteen. It finally the practice of the men on posts to combine their work, covering the posts, while remained in the lot in charge prisoners. As they were up one by one, they were

the lot and coralled with or victims. Before daylight hustled to the station house handiest wagon, and later court.

ntly as 1895 the first police were put in use by the city. re of the open type, and gained the name "hurry up" a title which has lingered ay. Only one of the original is now in the department, is out in Flushing, where es are trained to the police

In the days before console Brooklyn and the Bronx ahead of New York in the lation of prisoners, patrols een in use for ten years in ices

The development of the various types of wagon has been rapid. The open wagon was followed by the single-horse, straight-sill wagon, only four of which are now in service and these in turn gave way to what is known as the "cut under" or ambulance type, which is in general use now.

On November 30th, 1907, an electric patrol wagon was purchased by the city for trial. It was put in use in the Tenderloin precinct, where it has rendered efficient service for the past three and a half years. The "Tenderloin," commanded by Captain Samuel McElroy, is easily the busiest single precinct in the city. In it are restaurants and drinking places of high and low degree, a great shopping center, a turbulent "black belt," and the larger part of the Great White Way. Officially the precinct is known as the Twenty-third. It is bounded by Fourth and Seventh Avenues and Twenty-seventh and Forty-second Streets. The station house is on West Thirtieth Street between Sixth and Seventh Avenues.



Electric Seen Recently at the Pennsylvania Station. Electric Pleasure Vehicles for City Use are Now Being Widely Advocated

The electric patrol is called out on an average ten times a day. In it reserves were hurried to the recent Washington Place catastrophe to maintain fire lines, after which the wagon carried the dead to the morgue. During the express strike it was stationed at the Forty-fourth Street stable, ready for instant

service. At night it is used to make rounds of all the adjoining precincts, gathering up the nightly haul of prisoners for conveyance to the Night Court.



When the Trolley Car Had Been Lifted From the Car, it was Found that the Entire Running Gear was Intact, in Spite of the Enormous Strain to Which the Car Had Been Put. The Electric was a "Baker"

### An Electric With a History

TAKEN from a pile of debris, apparently fit for nothing better than the junk-heap, The New York Edison Company's electric touring car which was

smashed under a trolley car in the Grand Central explosion last December, has been repaired and is now back in service. The repair work was done at the garage of the Baker Vehicle Company, makers of the machine, under the direction of Mr Platt.

The machine was used by the Arc Lamp De-



Pictures by Courtesy of the "Journal"

The Explosion in the New York Central Railroad Yards Lifted a Lexington Avenue Trolley Car From its Tracks and Flung it on One of The New York Edison Company's Electrics, Which Happened to be Passing



partment, and on the day of the catastrophe it was in charge of chauffeur Frank Smith. He was bound north on Lexington Avenue, and was running along beside a trolley car going in the same direction.

The terrific force of the explosion lifted the trolley clear of the track, blew Smith out of his seat, and then dropped the car on the automobile. Smith escaped with a severe shaking and several injured fingers, but the entire weight of the trolley car rested

ning gear is that which went through the wreck, and supported the entire weight of a trolley car. There are a few new spokes in one wheel and one new steering knuckle on the front axle. The chassis, the axles, the running gear, the wheels and even the springs were not replaced. Above the frame it was necessary to build a new body of improved model and to replace the steering wheel, which had been driven into the seat. Thirty-six of the forty

original battery cells are still in the car. In the year the car had been used by The New York Edison Company it had been driven over 10,000 miles, and the service it has given since the accident has been fully up to its previous standard.



**The Edison Car Back at Work After a Visit to the Factory. The Original Driver, Who Escaped Serious Injury at the Time of the Explosion, is at the Wheel**

on the automobile. Despite this great strain, the running gear was later found to be practically uninjured.

After the wreckage had been cleared away a hurried examination of the machine was made. It looked as if the car was a complete loss and it was sent to the manufacturers. On the first of April, however, the machine was again in service, with Smith back in his place at the steering wheel.

As the car stands to-day, its run-

"Poets are born, not paid."

## Prize Catch-Word

**T**HE Current Car." This is to be the slogan of the Electric Automobile Dealers' Association during their advertising campaign.

In response to the offer of a prize of \$50 for the best catch phrase, more than 70,000 answers were received. From all these the above was selected, the prize winner being Mrs L F Muller of 355 West Fifty-fifth Street.



## The Choralcelo

THE choralcelo is like nothing else the world of music has ever known and it does not seem unreasonable to suppose that it will do what those who are interested in it believe, revolutionize the musical world.

The choralcelo is founded upon an entirely new principle. It utilizes electricity to vibrate strings and the result is absolute purity of tone. Each string corresponding to a note has a magnet behind it and when a key is depressed a pulsating current passes through the magnet, causing the string to vibrate without any contact of a physical nature. A synthetic or orchestral tone is produced, as a string under free vibration gives forth all possible overtones of the greatest richness and purity. It is not marred as by the noise of rushing air in the pipes of an organ, the hammering of the strings in a piano or the scrape of a bow on the violin. These disturbing vibrations, while almost always sub-tonal in quality, may be distinguished by the practiced ear in the finest of performances upon the best of these instruments.

The choralcelo is played like the piano or organ and the player has perfect control over the tone quantity and tone quality of the instrument. As long as the key is depressed,



The Choralcelo Which it is Expected Will Open up New Realms in Music. It Gives Tones Purer Than the Organ from Strings Vibrated by Electricity

the pulsation in the magnet continues and the string responds, giving a sustained tone. If the rate of pulsation is increased in the magnets the strings respond, changing both in pitch and quality. Thus infinite tone qualities may be produced, while effects heretofore unknown in music have been discovered, which would tend to bear out the theory of Busoni on

that subject. An octave coupler is added which enables the player to use a large number of notes at once, producing great volume and power. It can be made to bring forth such a volume of sound as to crash out like thunder, a deep, clear, resonant note to swell and throb in eloquent appeal, and from that to die away until it resembles the sweet note of the flute, the tinkling of water or the far-away harmony of bells.

The recital at which the writer was fortunate enough to be present was most impressive. Besides many of the more complex compositions of the great tone masters some of the simpler melodies of Wagner, Schumann, Liszt and Chopin were played. Beautiful harmony resulted, with such a novel combination of the orchestral notes, the organ and the piano that the beauty of it seemed almost too idealistic to be real.

A piano action is furnished so that the instrument may be played in the usual manner. An interesting combination is produced when both the electrical and piano actions are used simultaneously, thus giving two tones from the same string at the same time, one being the electrical vibration or organ tone and the other the hammer or piano tone. The choralcelo is not an automatic

or self-playing instrument any more than the piano or the organ, but it may be equipped with a pneumatic action for operating roll music.

The future will undoubtedly see many interesting developments and extensions of this instrument. For use in cathedrals and large churches the choralcelo is now being built with sixteen-foot strings and as many key manuals as desired. Studios have been opened at 12 West Thirty-second Street, where the instrument may be



"Behind the Scenes" at the Choralcelo Studio, 12 West Thirty-second Street, Showing the Strings and Magnets of the Choralcelo

heard by appointment. The choralcelo was the discovery of Mr Melven L Severy and was made more than twenty years ago. For the past twelve years he has been working in conjunction with Mr George B Sinclair on his invention, and together they have brought the instrument to its present state of perfection. The choralcelo factories are in Boston.



An Impression of Lower New York From the North River

*W. P. M. S.*

## The New Custom House

**T**HE New York Custom House, usually conceded to be the finest not only in this country but in the world, was completed in 1907, at a cost of about \$8,000,000. The architect is Cass Gilbert, famous

for his public buildings throughout the United States. The structure is of granite, seven stories high, and most imposing. This effect is enhanced by a considerable number of admirable statues enriching the facade.



**Night View. The New Custom House**

for his public buildings throughout the United States. The structure is of granite, seven stories high, and most imposing. This effect is enhanced by a considerable number of admirable statues enriching the facade.

The upper and main entablature displays a series of figures representing different nationalities, while the

four large groups, by Daniel C. French, flanking the entrance and the east and west corners, are exceptionally fine. These symbolize the four continents, Asia, Europe, America, and Africa.

The Custom House is lighted by 3,181 sixteen-candle-power lamps, while 8,652 horse-power is used.



## WIRING AND INSTALLATION CONTRACTORS

### West of Broadway and Fifth Avenue

Amsterdam Ave 452—C A Christesen  
 Amsterdam Ave 648—H Blumstetter  
 Broadway 335—Park Sullinger  
 Broadway 379—J S Bihin  
 Broadway 1170—The Chas L Eidlitz Co  
 Broadway 1269—S W Electric Co  
 Broadway 2270—A Ostrom Rowe  
 Broadway 2382—H S Beidleman  
 Broadway 2742—H Reinwald Jr  
 Church St 50—L K Comstock & Co  
 Columbus Ave 220—T F Carr  
 Columbus Ave 549—Hoffman & Elias  
 Columbus Ave 649—E Craske  
 Cortlandt St 26—Cleveland & Ryan  
 Cortlandt St 39—Blackall & Baldwin  
 Cortlandt St 39—Electric Cons & Supply Co  
 Cortlandt St 84—Bleye Elec Co  
 Duane St 172—Jas F Hughes Co  
 Eighth Ave 2719—Franklin Elec Co  
 Fifth Ave 65—L A Whitney Elec Co  
 Fifth Ave 75—H M Walters  
 Fifth Ave 503—Flucker & Keedwell  
 Greenwich St 183—Thomas & Johnson  
 Greenwich St 207—F A Frey  
 Greenwich St 255—F C Ross  
 Hudson St 660—Edw S Eaton  
 Sixth Ave 110—J V Johnson  
 Sixth Ave 419—C A Pinkham  
 Sixth Ave 617—Zenker & Siems  
 Sixth Ave 780—C C Bohn Electric Co  
 Sixth Ave 943—John M Flint  
 Seventh Ave 192—Emil Christensen Inc  
 Seventh Ave 727—Conduit Wiring Co  
 Seventh Ave 2290—Nathan Zolin-ky  
 Thames St 27—Watson Flagg Eng Co  
 Thames St 27—McLeod Ward & Co  
 Varick St 132—Eugene P Etzel  
 Warren St 73—J P Hall  
 Warren St 96—Wm F Duffy  
 West St 116—Knickerbocker Electric Co  
 West St 463—Western Elec Co  
 West 14th St 130—The Electrical Contracting Co  
 West 17th St 156—Harry A Hanft  
 West 21st St 35—W J McClure & Co  
 West 26th St 54—Louis Freund  
 West 28th St 11—Thos L Dillon  
 West 30th St 110—Tucker Elec Con Co  
 West 31st St 109—Jandous Elec Equip Co  
 West 33d St 25—Harry Alexander  
 West 33d St 209—E J Elec Installation Co  
 West 34th St 45—Peet & Powers  
 West 38th St 72—A J Buschman Co  
 West 42d St 25—Russell Haynes Electrical Co  
 West 42d St 29 33—Germond & Turner  
 West 42d St 112—Oberg Blumberg & Bleyer  
 West 45th St 100—F A Bohling  
 West 49th St 422—Frank Fisch  
 West 72d St 179—T J Kaufman & Co  
 West 111th St 147—Mariposa Electric Co  
 West 116th St 227—Lewis S Davis  
 West 134th St 314—M Kohosot  
 Wooster St 12—Durbrow & Hearne Mfg Co

### East of Broadway and Fifth Avenue

Beekman St 74—Jordan Bros Inc  
 Broome St 105—B H Weinberg  
 Cedar St 16—Wm Truswell & Son  
 Dover St 8—E W Hazazer  
 East 7th St 138—H A Schreiber

East 9th St 65—George D Beinert  
 East 9th St 51—B W Sandbach & Co  
 East 22d St 27—Hunt & Morgan  
 East 22d St 113—J Livingston & Co Inc  
 East 23d St 10—Porsch Elec Co  
 East 23d St 42—Kimball Elec Construc Co  
 East 23d St 145—Bateman & Miller  
 East 25th St 122—Isador Fajans  
 East 28th St 114—Burkart Elec Co  
 East 30th St 13—Geo H Shuman  
 East 37th St 207—Reis & O'Donovan  
 East 42d St 39—Edwards Elec Con Co  
 East 42d St 45—Cowden & DeYoung Inc  
 East 55th St 147—Morris Levi & Co  
 East 57th St 426—Behlert Elec Co  
 East 59th St 57—Stanley & Ruth  
 East 72d St 107—E J Dustman  
 East 77th St 426—Edw Zenker  
 East 88th St 170—M Strompf  
 East 125th St 13—L L Strauss  
 East 125th St 31—Leo S Stern  
 East 125th St 77—Peter Jansen  
 Fourth Ave 373—Hatzel & Buehler  
 Frankfort St 20 30—J F Bidstrup & Co  
 Fulton St 90 98—Fulton Electric Co  
 Fulton St 227—Edward B Stott & Co  
 Fulton St 237—General Electric Inspection Co  
 Gold St 29—Mfrs & Inventors Elec Co  
 Grand St 235—Joseph Waintrob  
 Great Jones St 38—Geo Weber & Bro  
 John St 52—Alfred Whiteley  
 Lexington Ave 1240—J E Woelfe  
 Liberty St 123—G Curt Kastner  
 Liberty St 126—S Arthur Brown  
 Madison Ave 314—Nimis & Nimis  
 Madison Ave 959—Kendelhardt & Morris  
 Madison Ave 1122—F W Cohn  
 Park Ave 103—Stehlin-Miller-Henes Co  
 Park Ave 1630—Guarantee Electric Co  
 Rose St 35—Geo Wiederman Elec Co  
 Third Ave 221—Maurice Young  
 Third Ave 670—Silverman Bros  
 Third Ave 1021 E Kalkan  
 Walker St 84—M F Finkelstein  
 Wall St 2—Edwin C Gee  
 Wall St 90—Chas Davidson

### Bronx

Baker & Fox—313 E 141st St  
 Blackman & Guttman—226-28 East 144th St  
 Bogan Irving A—4192 Park Ave  
 Evans & Kaestner—893 Intervale Ave  
 Hinners F J Jr—585 East 135th St  
 Kips John—161st St and 3d Ave  
 Kirschhoff C Arthur—584 East 163d St  
 Landy Jacob—673 Elton Ave  
 Mangam H I & Co—333 East 162d St  
 Ross E L—356 East 138th St  
 Ryan Geo E—603 Tremont Ave  
 Schwarzer M & Son—460 E 167th St  
 Vieberth Jos F—1243 Taylor Ave  
 Woods Lewis H—2355 Jerome Ave

### Yonkers

Excelsior Gas & Elec Fixture Co—42 Warbur-  
 ton Ave  
 Imrie & Underhill—Bronxville N Y  
 Nugent A W Co Inc—83 Warburton Ave  
 Seaboard Elec Co—32 N Broadway  
 Westchester Elec Equip Co—34 N B'way

# *The Edison Monthly*

*July*



*1911*

## C O N T E N T S

VOLUME IV

NUMBER 2

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# Editorial

## *The Edison Monthly*

Published by

### *The New York Edison Company*

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The old proverb, "Cobblers' children go unshod," is one of the truest of those homely sayings. People most nearly concerned with anything frequently fail to apply it to themselves; doctors' families are seldom given to dosing.

For many years the electric industry has been employing as one of its strongest arguments for the introduction of current for light and power, the statement that it pays to consider the welfare of the employees.

Accordingly, it is gratifying to learn that the electrical industry is following its own instruction to a noteworthy extent.



The report of the Public Policy Committee of the National Electric Light Association, presented at the convention but recently adjourned in New York, outlines the most extensive program of welfare work for employees ever attempted in this country.

Clearly formulated after a careful study of the treatment of similar problems in Europe, the report en-

dorses accident and sickness insurance, death benefits, "service annuities," a term suggested as far more appropriate than "old-age pensions," profit sharing, employees' saving and investment funds, and life insurance for the workers.



It is pointed out that there is distinct difference between filling position and rendering service. The latter word implies a whole-hearted consideration of the firm's interests which is generally manifest in continuity of service, care in the handling of the company's property and attention to the work at hand.

Annuities, therefore, are recommended for men over 65 and women over 60, who have a satisfactory record of ten years' service. The necessary expense involved should be borne entirely by the industry and be considered as part of the cost of labor.



The suggestions for profit-sharing are equally broad-minded. The best worker is he who feels himself a partner in the business, not merely a name on the pay-roll. To secure this interest, the man should share in the profits of the business aside from his regular stipend.

The further recommendations include sickness, life and accident insurance, and employees' saving and investment funds. Altogether, this report is significant, not only as

account of its suggestions, which sound fairly radical for America, but still more so because of the standing of the committee members, well known throughout the electrical industry as thoroughly conservative and practical men.



One of the municipal experiments now being tried out in New York is the collection of ashes and garbage at night. The benefits of this are quite obvious while the objections which have been raised so far are not such that they cannot be overcome.

The chief disadvantage urged is the adding of another noise to the city nights, which are hideous enough without any further augmenting. The rattle of wagons, the clatter of horses' hoofs, it is pointed out, will murder whatever sleep is left to New Yorkers under present conditions.



The answer to this is simple. Why use horses? And since the chug-chug of an engine is in no way more to be desired, why not use electric trucks? Here is a piece of work to which the electric is eminently suited; it could be used economically, while its silence tips the balance entirely in the electric's favor.

While the city is trying the experiment of night collecting in certain districts, it would be extremely valuable as well as interesting to employ a few electric trucks and note the results.

Plans for the 1911 Electrical Show have been fully formulated. The "show" this coming Fall is not to be a show, it seems, but a genuine exhibition, not only of certain manufacturers' wares, but of the application of electricity to industry.

By availing themselves of the facilities of the New Grand Central Palace, the managers of "The Electrical Exposition of 1911" will be able to present not only apparatus as put forth by representative firms, but also to have a section devoted to electricity in its relation to trade and commerce.

Here will be shown everything, from cigarette to candy making, textile weaving, printing processes, shoe-making, and many other important industries, in their most recent developments, which is, of course, the introduction of the motor drive.

While the display of various manufacturers' products has always a definite trade value, undoubtedly, this latter development of the Electrical Show will necessarily present greater educational possibilities for the general public.



In fact, the "Electrical Show" of 1911 will be the most important industrial display since the Mechanics' Exhibit, held a generation back. Those thirty years have seen the beginning of the trade revolution wrought by electricity. What has been gained already will be shown, while even the laity cannot fail to see future possibilities suggested by present accomplishments.



Million Dollar Apartment House at 154-7 Riverside Drive, Corner 88th Street. Its Electrical Equipment Includes 3,500 Incandescent Lamps, Elevators and Vacuum Cleaner System on Edison Service

## The Chemists' Building

THE Chemists' Building, in East Forty-first Street, a modern ten-story structure, has just been completed, for the exclusive use

In Berlin there is the Hofmann-Haus, the home of the German Chemical Society, and London has its Faraday Laboratories for Chemical and



The Library is on the Third Floor, and Occupies the Entire Front of the Building. Opening from it in the Rear are the Museum and Reference Rooms

of those engaged in analytical research. Its position among the public buildings of this country is unique, for there is no other devoted exclusively to the interests to which this building has been dedicated. Not only are there many laboratories housed under this roof, but here, too, is the home of the Chemists' Club.

Physical Research. These institutions are complete in their way, but neither of them is planned to serve under one roof the social, intellectual and practical needs of the profession.

The Chemists' Building was dedicated on March 17th last. The ceremony was the occasion of a great gathering of men well known in the



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chemical science and industry, Dr Morris Loeb making the principal address. The exercises were continued in the evening and were carried over on Saturday afternoon and evening.

The Chemists' Building Company, organized to promote the interests of the science by providing a home for

offices of the club and the auditorium. The auditorium has a seating capacity of three hundred and fifty.

Rather unusual is the provision made here for chemical tests and demonstrations. Tables are provided which are so arranged that they can be readily connected with water, gas,



The Dining Room and Parlors are on the Second Floor. A Completely Equipped Kitchen, Fitted with Small Motors is in the Basement

it, made the enterprise possible. The building is of fireproof construction, ten stories in height, and occupies a plot 56 feet by 100 feet, at 50-54 East Forty-first Street. The first five floors are occupied by the Chemists' Club. On the street floor are the lobby of the building, the

electricity, compressed air and vacuum.

Just off the museum is the Trustees' room. It is commonly referred to as the Chapel and is designed to represent the den of the ancient alchemist. There is the high arched, vaulted ceiling, a Gothic



**The Cable Drums and Part of the Motor Used in Operating the Two Elevators**

window with leaded glass, a metal lantern of mediæval pattern, an iron chest with its ponderous key and a heavy oaken table. Hanging over the center of the room is the traditional salamander, defying history and progress by grasping modern electric light bulbs in its claws. On the fifth and sixth floors are rooms and suites for the use of club members and their guests.

The upper floors are designed for laboratory use exclusively, and are provided with ventilating flues, water, gas and electric mains, and refrigerating and

compressed air lines. Three small but completely equipped laboratories are provided for the use of visiting chemists. These laboratories, suited to the needs of analytical, commercial or research chemists, physicists and bacteriologists, are not intended for manufacturing purposes. The library is on the third floor and its shelves are filled with rare and valuable works.

All the light and power in the building is supplied from the mains of The New York Edison Company. Two ten-horse-power motors operate the house pumps; there are four motors of eight horse power each for the blowers, a three-horse-power motor for the brine pump and a fifteen-horse-power motor for the refrigerating plant. The refrigerating plant has a capacity of ten tons of refrigeration or five tons of ice a day.



**So Complete is the Equipment of the Laboratories, That Every Bit of Available Space Has Been Leased**





Holland House, Fifth Avenue and Thirtieth Street, Now Using Edison Service

## A Modern Bakery

**B**READ manufacturing is fundamentally a painstaking and particular process, requiring among other things absolute accuracy in time, temperature and quantities. No matter when, where or how bread is made, certain care must be taken in the process to secure good results.

In a great city like New York, where hundreds of thousands of loaves are consumed every day, there must necessarily be many highly perfected sources of great capacity for supplying this demand. Recently the writer of this article made a tour of inspection through one of the best and most modern bread factories in the city, that of the Cushman Baking Company, at 517 West Fifty-ninth Street.

From top to bottom this establishment is run by motor drive in the form of individual units, there being nearly a hundred horse-power in use. As the process of manufacture begins at the top of the building and progresses downward that method will be followed in the description.

The sixth floor is used to store flour and at all times about ten



The Dough-dividing Machine Which Turns Out Rolls for New Yorkers' Breakfasts at the Rate of 10,000 per Hour. It also has a Capacity of 2,500 Loaves of Bread per Hour. Operated by a Two-Horse-power Motor on Top

carloads of flour are kept on hand. As the flour is used it is dumped into an enclosed sifter, then taken up by an elevator, which is also encased, and carried into a blending machine. The last named contrivance consists of a number of paddle-wheels which mix together the different brands of flour to produce a desired blend. The sifter, blender and connecting elevators are operated by a seven and one-half horse-power motor.

After the flour has been blended it falls upon another elevator which carries it to one of the four big storage bins, each of which has a capacity of fifty barrels. From these it is de-



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posited directly into the mixing room on the fourth floor, not even once coming into contact with the outside air from the time it goes in the sifter until it is mixed into dough.

In weighing the flour out of the bins an interesting electrical contrivance is used with utmost satisfaction. When the men in the mixing room want a given amount of flour they set the scale on the weighing machine at the desired weight and press a button which starts a motor beside one of the bins. This starts the shaft in the bin revolving and the flour begins to descend. When enough is in the scale to balance it an automatic device shuts off the current, the flow of flour and the motor all at the same time. There are four two-horse-power motors for this purpose, while the automatic shut-off attachment is an invention of the Cushman Company.

The fourth floor is for the most part taken up by the mixing room. There are three huge dough mixers at

one end of the room, all of which are run by fifteen-horse-power motors. Directly over them are the flour-weighing machines, a water scale for weighing water and an electric water tempering tank to make the water the right temperature before it goes into the mixers. After the dough is mixed it is placed in the dough troughs, of which there are twenty-five. In these the dough ferments, the layer which puffs up on the top being exploded at regular intervals to allow the gases to escape. A temperature of 85 degrees F is maintained in the mixing room by means of a thermostat, while the fermenting process, commonly known as "raising," is taking place, usually a period of six hours.

The testing laboratory is also on the fourth floor and this contains an electric oven and an electric proofing box. Every ingredient is put through thorough tests, flour alone being tested for gluten, proteids, acidity, water absorbing powers and vegetable fats. Another part of the fourth floor is

taken up by the weighing room, where everything that goes into making the bread, except flour and water, is weighed and measured out according to receipt. A three-horse-power motor is installed here to run bread-crumbl, almond blanching and almond-paste machines.



Mixing Room on First Floor. Great Mixers are Emptying Their Contents of a Thousand Loaves into Dough Troughs Where They Ferment Six Hours. Flour is Automatically Weighed into Mixers Through Overhead Funnels by Electricity

When the dough comes out of the troughs in the mixing room it is dropped through openings into bake-shop No 1, on the third floor, where six cavernous ovens await it. Each piece of dough that is passed down from the mixing room contains the material for a thousand loaves and requires the efforts of two strong men to handle. Through one of the openings

the dough goes directly into an electric dividing machine and through another onto a great table around which the bakers work.

The dividing machine performs a very important part in the day's work, or, as most of the work is done at night, the night's work of the modern bake shop. The dough enters through a large funnel at the top and comes out of various openings cut into loaves, all of exactly the same size. The loaves are cut automatically and by an adjusting device can be made almost any size or weight. A dividing machine will turn out 2,000 loaves of bread an hour or five times that number of rolls. A two-horse-power motor set on the machine furnishes the power.



Even the Grooming of the Horses Which Deliver the Output of the Cushman Bakery is Done by Electricity. Seventy-five Horses are Stabled on the Second Floor at 517 West Fifty-ninth Street. The Picture Shows One of Them Being Electrically Groomed

After the loaves are cut they are molded on benches and placed in the baking pans, five of which are strapped together into a single unit. Then follows the hour in which the dough is allowed to proof.

From the proofing-boxes the loaves go into the ovens, their last resting place, and, presto—emerge after twenty-five minutes crisp, fragrant and delicious. As soon as the loaves are brought out of the ovens they are emptied out of the pans on the dumping racks. Fifteen minutes are spent on the cooling racks and then the loaves travel to the fifth floor where they are packed for delivery.

The ovens, all of which are lighted on the inside by electricity so that the bakers can see to load and un-





The Electric Testing Oven in the Laboratory of the Cushman Bakery

load them, are a very interesting sort of monster. Each one weighs sixty tons and is about half brick and half sand. The fire is kept in a narrow pit running from front to back on a level with the floor. The baking pit is broad, but only a couple of feet high and is lined with tile brick. The capacity of an oven is four hundred loaves, and while the baking is going on a temperature of from 500 to 550 degrees F is maintained. An oven is loaded in about three minutes by a baker using a "peel." This is a long pole which at one end has a smooth board about two feet wide and three feet long. Five pans, strapped into a single unit, are placed on the end of a peel and the baker slides them through the narrow door of the oven, repeating the process until the oven is full. The peel is also used for unloading.

On the second floor are stabled seventy-five horses, used in delivering the bread. Stabling horses in a building where bread is baked appears to

be rather a daring and dangerous undertaking, but so well is this stable cared for that it passes the most rigid inspection, the air being continually refreshed by two exhaust fans operated by one-horse-power motors. The stable manager has some original ideas about the care of horses. He believes that oats before being fed to horses should be crushed, and for that purpose uses an oat-crushing machine which is operated by a five-horse-power motor. A two-horse-power motor runs a grooming machine, which does all of the grooming. The wagons are kept on the first floor, which has a cement bottom, and washers are at work night and day.



Here the Flour is Emptied Out of Sacks into the Sifter and Carried by the Enclosed Elevator Shown in the Picture to the Blender. The Entire System of Handling the Flour is Operated by Electricity



## Furniture Making

FROM the days when the Roman conquerers depended on the handicraft of their Greek slaves for the creation of their wonderful and extravagantly carved and decorated couches and divans, furniture

land of the Pharaohs are of extravagant design, hand carved and are inlaid with ivory and precious stones. Rich cloths and tapestries were used to cover them. Among the ancient Romans, the Greek art predominated,



Furniture in the Office of the Peerless Motor Car Company. Product of an Electrically Equipped Factory

making has progressed, till to-day lightning is harnessed to the wonderful machinery which turns out our modern furniture.

Very little is known of the early history of furniture making, but that the ancient Egyptians found use for such articles is attested by the specimens found in museums. The couches and divans which have come from the

for the conquerers compelled their slaves to fashion the couches and divans. Vast sums were lavished on them.

As late as the thirteenth century, chairs were luxuries for kings alone, and goods and chattels were contained in chests dug out of solid wood. From the fifth to the sixteenth century, a Gothic or ecclesiastical style prevailed,

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Buzz-Saw

and the wood carvers attained a great skill. Prior to the fourteenth or fifteenth century, furniture was very rare. Beds and chests only were provided for sleeping rooms. Chairs were cumbersome and were usually built as part of the dwelling, while boards laid across trestles usually served as a banquet table. The development of this style of furniture was arrested by the Renaissance.

In 1667, Minister Colbert, in France, brought together the best workmen in Europe and established the French Royal Manufactory of Furniture. This academy was continued during the reign of Louis XV. The Guild of Cofferers, a fifteenth century society of craftsmen, made a specialty of the construction of chests. They developed their art through the stages of the plain square box; the box with legs; the longer box with legs which served as a divan; then the chest with drawers, and later the chest with shelves and a back to it. From this it was not a great step to the Yorkshire dresser and our nineteenth century sideboard.

The history of furniture in this country began in the days of our

Puritan ancestors. They brought very few articles with them and adhered to the most severe designs, avoiding anything that savored of the ecclesiastical of the country they had fled. Late in the seventeenth century the Southern planters began to import furniture from England and France, so that the styles found in the two sections of the country were in sharp contrast.

With the vast resources of this country furniture making advanced rapidly. With forests to draw from, swiftly moving streams to supply power, constantly improving implements, and with an ever-increasing demand, every impetus was afforded to promote the industry.

The evolution from the water-mill to the steam-driven mill and then to the electrically-driven turning shops, was in accord with the development of the trade. The period of revolving shafts and the whirling belts, with the not infrequent newspaper account of an injured workman, had its established



Discarded Belting—Relics of Shaft Drive Formerly Employed

place in the industry. This, too, has now commenced to give ground, and the modern cabinet-maker's shop or great mill is not encumbered by tons of useless machinery.

In the heart of New York's financial district, and almost within hearing distance of the curb brokers in Broad Street, is a five-story building which houses one of the best-known places of its kind in this part of the country, the establishment of Samuel Lakow. From it have come some of the best samples of the modern cabinet-makers' art. All the work in a large express company's building on Broadway was turned out here, as well as the furniture for the salesrooms of one of the largest automobile firms in this city.

All the work of the company is now done on the three upper floors of the building. Prior to the installation of his motor-driven machinery, twelve years ago, Mr Lakow sent almost all his work to planing and turning mills, and was only able to do the assembling and finishing on his own premises. After he installed two motors of ten and fifteen horse-power he was able to handle all the work.

Four months ago, further progress was made and the capacity of his plant was increased, by discarding the big motors and substituting ten smaller ones, ranging all the way from one-fourth horse-power to five horse-power. In a corner of the shop are two old motors and a pile of cast-off belting, a mute testimonial to the march of progress. The shafting which formerly encumbered the place and shut out much-needed light, has found its way to the junk heap. With the new motors, room has been made for two additional



Swing Saw

machines; there is a lower cost of up-keep for the machinery, the wear and tear on the building is greatly reduced, due to the elimination of strains caused by belt pulleys near the ceiling; the fire hazard is lowered and there is less expensive overtime work while current bills have been reduced twenty per cent.

A striking illustration of the economy of the direct-motor connection, as compared with the shaft and belt drive method, was given by Mr Lakow recently. He turned on the current in his smallest motor and sent the power into his emery wheel, on which all the tools are sharpened. Not another piece of machinery in the shop moved. In former days he had to turn on a fifteen-horse-power motor, start all his shafting, and in the din and racket use the machine for which a quarter-horse-power motor supplies all the necessary power.



### Electric Linotype Melting Pot Statistics

SOME interesting figures regarding the Wicker electrically heated melting pot, used in the *World* office, are given in the *Typesetting Machine Engineers' Journal*.

One of the *World* operators who has had long experience in using linotype machines with gas and who has had more than a year's experience with the machines in the *World* Building, has noted some valuable figures. He reckons that one hour for each shift of seven and a half hours, or three hours out of twenty-four, is saved by each machine using the electric pot.

"This represents time that was formerly spent digging out backsquirts, heating the pot up when the temperature had dropped, and cooling the pot down when temperature had run up too high. The money value of this time is directly represented by the loss of the operator's time, which costs between sixty and seventy cents per hour, the loss of time of the machine, representing an investment of over \$3,000, and the delay of the product,

which is a loss at times incalculable to a newspaper.

"But what appeals most strongly to him, from an operator's standpoint, is the great improvement in the sanitary conditions that is effected by doing away with noxious fumes and vitiated air. This improved condition restores the operator to his natural mental and physical vigor, making him a better and happier man and prolonging his life.

"Another important feature, which was impossible with gas, is that with electric heat the operator knows that at the end of the given heating-up period, which is one hour, he has exactly the right temperature, correctly proportioned, between the pot and the mouthpiece, so he can go right to work."

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Elastic currency is all right, but what most people need is adhesive coin.—*Ideal Power*.

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Some men die hard and others are dead easy.—*Jovian Bulletin*.



Grant's Tomb, Illuminated

## A Motorless Sign Flasher

**T**HE great popularity of the electric sign as an advertising medium has called forth various devices for its economical use. The most general demand in this direction has been for a mechanical flashing device that will dispense with a motor for that purpose.

Such a motorless sign flasher has been put upon the market; it is said to give close adjustment of speed, and can be used on any size sign. The break is made in an exhausted glass tube attached to a rocker arm and containing a quantity of mercury, which slides from one end of the tube to the other as the arm oscillates. The ends of the arm are attached to dash-pot plungers, which give the tube a slow and uniform motion.

The arm is operated by a solenoid in shunt with the mercury tube, and the motion is produced by making and breaking the circuit at the adjustable mercury tube contacts near the pivot of the rocker arm. By raising or lowering certain screws the period of the flash can be changed within wide limits, which can be still further increased by changing the viscosity of the liquid in the dash-pots.

As the contacts which break the main current are in vacuum, there is little danger from burn-outs or corrosion, thus lessening the need of renewal. For three-wire work and for large capacity, two or three mercury tubes are used, and very large installations can be handled with safety. In the standard forms the



Interior of the Hoh Motorless Sign Flasher. This is the Standard Two-wire Type

two-wire flashers are made in various sizes up to fifty amperes capacity maximum, while the double flashers to operate on a two-wire system for double faced signs are made in various sizes up to thirty-seven amperes maximum on each switch, or a total of seventy-four amperes on the entire sign.

This flasher takes its name from the inventor and owner, Mr Emil C A Hoh, of 386 Atlantic Avenue, Brooklyn. The apparatus is shipped complete in a heavy wrought-iron box ready for connecting to signs, and it has been approved by the Fire Underwriters and City Department. This flasher is now used by the Eden Musee, Bretton Hall Garage, Detroit Electric Car Company, Imperial Garage Company, Ansonia Storage Company, Eldorado Casino, La Parisienne Rotisserie, the Artistic Amusement Company, and several other New York firms.



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### Recent Signs of the Times

IT was no more than appropriate that the assembling of the Thirty-fourth Annual Convention of the National Electric Light Association should have been heralded to the general public of New York by the use

an association been so prominently displayed in New York City as was that of the National Electric Light Association. By day it fluttered over the busy thoroughfares and when darkness fell it blazed forth in letters of light above the porticos of the leading hotels, causing not a little wonderment among laymen as to the



This is How the Sign Looked at Night During the Recent Convention of the National Electric Light Association

of electric signs. These, bearing the initials and seal of the Association, and affixed to various well-known hostleries and restaurants, brought forth much comment and many questions from the passers-by, for this is the first time since 1899 that this city had been chosen by the Association for its yearly gathering.

Never before has the emblem of

significance of the mysterious characters, Ohm's formula,—the emblem of the National Electric Light Association.

One of the places where its presence may be construed as decidedly an honor was on the Hotel Astor. Previously no electric sign had ever appeared on its artistic and aristocratic facade. It is with pride that

THE EDISON MONTHLY reproduces a day and night picture of this sign. It is quite needless to state that the Astor was the stopping place, as well as the headquarters, of a large number of the 5,149 members of the Association who attended the convention.

The sign itself was fifty-three feet and eleven inches long, the letters

and derive their name from the fact that they are frequently used in candelabra.

The circular part of the sign in the center was five and a half feet in diameter. There were ninety-five four-candle-power standard lamps used in this portion of the sign. The characters were the wall-type, being pure white on a blue background, while



Nearly Eight Hundred Lamps Were Used in This Sign on the Front of the Hotel Astor. The Letters Were a Foot and a Half High

being of the skeleton type and a foot and a half in height. As the center cluster of lights which composed the emblem of the Association were different from the rest, they will be described separately. In the words "National Electric Light Association," six hundred and ninety-eight eight-candle-power candelabra lamps were used. These are small lamps of various shapes

the circle of lights were amber colored on a gold background.

These signs, one in the ball room and one in the grill room of the Hotel Astor, another on the Broadway corner of the Hotel Cadillac, and another on Louis Martin's restaurant, Broadway and Forty-second Street, were all constructed by the Metropolitan Engineering Company.



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### The Talking Sign and Other Signs

**A** TELLING variation of the usual type seen in the city is the so-called talking sign, an example of which is shown on this page. This photograph, owing to the few seconds' time needed for the exposure, not

first one displayed, being that at Broadway and Thirty-sixth Street. By changing the firm or goods to be advertised as often as desired, such a sign becomes a permanent investment. This possibility is of equal value to the advertiser, for it is, of course, less expensive to hire such service for any desired length of time



One of the Talking Signs on Harlem's White Way. There are Fifteen Letters or Monograms and Each Monogram Has a Vocabulary of Forty-eight Changes

only gives one of the sign messages, but shows the letters about to change to another wording.

Because almost any number of words can be spelled with such a sign, this device presents many business possibilities. The talking sign, which is a patented invention, was introduced to New York about ten years ago, one of the earliest, if not the

than to erect a large sign for his own exclusive use.

The particular talking sign illustrated here is seventy-five feet long, the letters being five feet high and four feet broad. The space is divided into fifteen so-called monograms. Each of these is, literally speaking, an expanse perforated with the necessary holes to form the letters or fig-

ures to be represented. In this particular instance, each monogram contains forty-eight "changes," these being the characters and numerals which can be made by adjusting the lights. Every monogram uses forty lamps, there being six hundred four-candle-power lamps in this sign.

The changes are controlled by a rather intricate arrangement, which roughly consists of a motor with a commutator for each monogram, fifteen commutators being required for the Prudential. By a system of metal dogs, not unlike the Yale lock in principle, the arrangement can be so adjusted beforehand that the proper connections are made with each revolution of the commutator to form the letters and figures wanted in a certain order. Readjustment can be made as often as desired, so that if the owner needs to have a new message each night, he has only to plan out the combinations.

One of the most noticeable signs in the automobile district is that on the roof of the Overland Car Company, 1599-1601 Broadway, near Forty-ninth Street. This sign is a representation of the globe with the

word "Overland" written across it in script and the word "Cars" further down in block letters. These are the raised type of letters, painted white with frosted lamps. The letters of the sign burn steadily but the circumference of the "globe" is connected to a flasher which produces, to the



One of the Most Noticeable Signs in the Automobile District. It Represents the World With the Words "Overland Cars" Written Across It

eye, a revolving effect. The lights which form the rays projecting from the imaginary poles receive their current through a flasher and burn with a scintillating effect. There are 748 two-candle-power lamps in use in this sign, the current for which is supplied by The New York Edison Company.

## Concerning Electric Vehicles

**T**HERE are few electric vehicles whose pilgrimages have taken them into altitudes above the clouds. A Detroit Electric victoria, a stock car, which had previously traveled about 5,000 miles in New

extending as near to the summit as it is possible for any kind of vehicle to go. One of the remarkable features of the climb was that it was accomplished on a single charge, Edison batteries being used.



**Autoing Above the Clouds on Mount Washington in a Detroit Electric Victoria. The Car is Nearing the Summit, Having Passed Through Cloudland. The Driver of a Mountain Stage is Coming up Behind on Foot**

York, was chosen for a 1,000-mile journey over the route laid out for the "ideal tour" through the New England States.

A side trip was taken to Mount Washington for the purpose of making a mountain-climbing test. The performance of the car in this trying ordeal was most gratifying, the trip

The two occupants of the car in this trip up the mountainside were Mr E I Alexander of the Edison Storage Battery Company and Mr R E Darling of the New York office of the Anderson Electric Car Co. As the clouds were continually shifting about the camera, considerable difficulty was experienced in getting a clear





**This is the Studebaker Electric Used in Carrying Books from the Congressional Library to the Capitol in Washington. Two Lansden Cars of a Similar Type are Used by the New York Public Libraries**

with a steel lining, and on each end is a place for armed guards with a small-sized arsenal in easy reach. The electric vehicle was chosen because of its reduced fire risk and greater economy. Another Studebaker electric is used

picture. The photograph which accompanies this article was one of the best obtained.

The storage battery and motor have displaced the picturesque horse and dray, so long used in the transfer of currency through the streets of Washington. A five-ton steel-lined fire- and mob-proof Studebaker truck has been sold the Government, and hereafter it will be used to carry the nation's millions from the Bureau of Engraving and Printing to the Treasury Department.

The body of the truck is specially constructed,

to carry books from the Congressional Library to the legislative halls, and combines with its book compartment a passenger space of ample size. Two Lansden electrics of a similar type are now used by the New York Public Libraries for transferring books between the numerous branches in the great library system of New York City.



**Bomb Proof, Mob Proof, Fire Proof. This Steel-lined Five-ton Studebaker Truck Carries Millions of Dollars from the Bureau of Engraving and Printing to the Treasury Department**

## Electricity on the Panama Canal

THE Panama Canal, where millions of dollars have been wasted, where hundreds of lives have been sacrificed, and the building of which for years defied the efforts of the most skilled engineers of the times, is at last nearing completion. No single element has entered more largely in the bringing about this great accomplishment than has the wonderful electric current.

Mr Edward Schildhauer, Electrical and Mechanical Engineer of the Isth-

mian Canal Commission, in an article on "Electricity as a Builder of the Gatun Locks" in *Popular Electricity*, says: "One of the contributory causes for the triumph of the modern American engineer over his less fortunate French brother in the digging of the Panama Canal has been the rapid advance made in engineering and construction methods since the days of De Lesseps. It is a question whether, even with proper management, the French, with the machinery and methods then known, could have pushed the work to completion. But methods have changed in recent years and not a few of these changes have been brought about by a knowledge of the application of electricity."

The problems in connection with the building of veritable mountains of artificial stone, for the concrete work of the dam amounts to nothing less than the building of mountains, required the erection of the Gatun Construction Plant, a vast industrial institution which will have been raised, served its usefulness and been dismantled, all in the short space of five years.

The plant was designed to unload, transport and mix the ingredients for concrete; to place them as used in the construction of the floors and walls of the chambers of the Gatun locks and to transport



Dropping Concrete into Place. This Picture Shows One of the Immense Structural Steel Forms, Which Stands Vertical to the Height of the Wall and Against Which the Concrete is Packed. Photographs Courtesy of Popular Electricity

the material used in the hydraulically filled portion of the Gatun dam. The plant, with the exception of the dredges and two auxiliary mixers, is an electrically driven one.

Despite the short period for which it was needed, the electric power

plant was built with every modern feature and accessory. There are three vertical steam generators of the Curtis type, each capable of delivering 1,500 kilowatts or a little over 2,000 horse-power of electrical energy.

The rock and sand used in making the concrete are brought to the site in barges. From the time they enter the slip, 600 feet from the great storage pile, to the time they are laid in place as concrete, not a hand is laid on them. Grab buckets, with a capacity of two cubic yards each, lift the rock or sand from the barges and carry it over cables to the storage pile. This pile of material rears itself like a small mountain. All the machinery is electrically driven.

An eighteen-inch searchlight projector is installed so the work may be carried on at night. The rock crusher is located in the old Porto Bello fort, twenty-four miles from Gatun. The cement is stored in a



The Concrete Mixers, Showing the Flat Cars of the Industrial Railroad and an Electric Locomotive

frame building on the opposite side of the slip from the unloading apparatus. The shed has a capacity of 100,000 barrels.

From their respective storage places the various materials are conveyed to the concrete mixer by an automatic electric railroad. The distance is over 2,000 feet, with an upgrade of sixty-one feet. The cars require no motormen or other attendant.

The cars are of the side-dump type and are operated by two seven and one-half horse-power motors. Current is taken from two third rails located between the track rails. On their return trip from the mixer, which is made empty, the wheels revolve the motors making dynamos of them, generating current which is pumped back into the line. The cars travel at the rate of 300 feet a minute.

The mixing plant consists of eight cubical mixers, each of a capacity of



## The Edison Monthly

sixty-four cubic feet. They are driven in sets of two from a jack shaft, each of the four jack shafts being directly coupled to a seventy-five horse-power motor. The mixers are belt driven. The mixed concrete is dumped into buckets on the industrial railway flat cars and on these cars is hauled to its final resting place. The flat-car trains consist of two cars and an electric

the top of the concrete retaining wall, the distance is equal to the height of a six-story office building. The culvert in the base of the wall is large enough to admit a standard locomotive.

The principle of the locks is the same as that of the earliest canals of this type, but it is the size of the Gatun locks that makes them so



The Automatic Railway. Showing the Rock Pile in the Background, and the Twin Third Rails Between the Car Tracks

engine. They run over a four-track rock-ballasted road.

There will be a little over two million cubic yards of concrete used in constructing the locks at Gatun. This mass of concrete would lay an ordinary sidewalk, six feet in width, from New York to San Francisco and back to Chicago.

From the floor-level of the lock to

wonderful. The largest of the gates which will swing between the different levels is to be sixty-five feet long, seven feet six inches thick and eighty-four feet high. The doors weigh three million pounds, and will be closed in the short space of two minutes. An arm from a horizontal bull wheel is used to close the gate. The wheel is operated by a powerful electric motor.



Night Views North and South from Times Square



## Growth of Vacuum Cleaning

**T**HE use of moving air for cleaning is not new by any means. Possibly the original application of the vacuum-cleaning idea was in saw and planing mills, to remove shavings and sawdust. These mills were then, and are to-day, equipped with a pipe, a large exhaust fan, and a distributing pipe, running outside of the building. Shavings and sawdust were swept underneath the pipe opening and drawn up by the

exhaust and deposited in piles where desired.

Vacuum cleaning, as applied to domestic work, however, seems to date back twenty-five or thirty years. In 1883, E S Leacraft patented apparatus employing the same general principles now used for vacuum cleaning, in so far as it employed a cleaning tool connected to a flexible hose, an intermediate dust separator combined with a suitable vacuum producing device.

Prior to 1900, Westman exploited the use of vacuum cleaning with a portable apparatus, with which for years he made a living. The apparatus used by Westman consisted of a cleaning tool, a hose connecting to a dust separator and a vacuum-producing device which could be operated either by hand or an electric motor. With this Westman went from house to house, building to building, re-



**A House Piped for Vacuum Cleaning. A Suggestion by the Manufacturers of the Richmond**

moving dirt without taking up rugs and carpets. Accounts of Westman's work were published in newspapers at the time and much interest centers around what he did, since among places that he cleaned were the State Capitol at Richmond, Virginia, and the hotel at Old Point Comfort.

The idea of installing a permanent vacuum-producing plant in the basement of a building, having a riser or stand-pipe going up through the building and outlets at the different floors, appears to have originated with G. L. Cummings, who patented an apparatus broadly covering this principle, the patent being issued in 1891. The first commercial application of this principle, however, as far as records show, was made by the Vacuum Cleaner Company, in the Frick Building, Pittsburg, in 1902.

Several disadvantages of permanent vacuum-cleaning plants, however, became apparent, such as large cost of installation, amount of power required to operate and the fact that plants of this nature are limited to the extraction of fine dust. The sweeping up of matches, for instance, would clog up the pipes and put the plant out of order. Porters in office buildings using permanent installations had, therefore, to be under instructions never to sweep up any material of this nature.



The Vacuna Cleaner in the Forty-second Street Showrooms—a Recent Development of the Fan Type

These disabilities led to the examination into the possibilities of a portable cleaner. Such a machine would necessarily have a short hose length, which would in turn cut down the amount of air friction in the pipe and consequently the quantity of power required for the work. The electric current provided by the ordinary lamp socket would supply the means for operating such a cleaner.

As frequently happens when a bright idea is discovered, in the haste to make money out of it, the mechanism is not always perfected before the device is placed on the market. Such was true of some of the early portable cleaners offered to the public for sale, with disastrous results in that it has taken some years to rebuild public confidence in the improved apparatus now available.

The next point in vacuum cleaning is a sufficient vacuum to do the work and yet not to have the pull so strong as to be destructive to the fabrics cleaned; for instance, it is desired to draw the dirt out from a carpet, but not to take the fibre along with it. In general, there are two types of portable cleaners, the pump and the fan, each of which has its advantages and its faults.

The pump type, on one hand, produces a high vacuum when the inlet is closed, but the vacuum falls off when the inlet is open. In addition, the more intricate valves are somewhat likely to get out of order. On the other hand, the fan arrangement gives very little to go astray. It handles a large volume of air, but in itself does not produce a high enough vacuum to prove an efficient extractor of dust.

The ideal form of cleaner, mechanically, would be the fan type of machine, provided a high enough vacuum can be produced to thoroughly extract the dust. To accomplish this, manufacturers are now using a number of fans mounted together in such a way as to increase the vacuum up to the necessary amount.

The Vacuna, a picture of which is shown on page 69, is one of the best and latest developments of this form of machine. Its fans are designed like turbines and are so mounted together upon a common shaft as to produce the degree of vacuum necessary for thorough cleaning, while at the same time the volume of air handled is sufficient to make it practical. It will sweep up matches, cigarettes, camphor balls, strings, bits of paper and other heavy ma-

terial that collects about the house.

The great advantage of this fan type, now represented by many machines on the market, lies in the fact that it holds at all times a uniform vacuum, the volume of air that it handles varying with the inlet opening, the amount being smallest when the cleaning tool is pressed flat against the carpet. In this case, the vacuum produced is sufficient to extract all fine dust, while at the same time, if any larger objects are encountered the act of lifting the cleaning tool off the floor to allow these larger articles to enter the slot, allows a sufficiently increased volume of air to flow, so that the heavy articles are carried through the hose and deposited in the dust bag.

With the growing popularity of vacuum cleaning, there have been offered for sale several varieties at a lesser price than that asked for the first good machines, generally costing upwards of a hundred dollars. The demand has come from the ultimate consumer, the small household. Machines designed for this particular market are commonly lighter and handier than the standard office cleaners, these points being especially desired by the housekeeper.

While pointing out the advantages of the portable cleaner in its special field, the good points of the stationary form should not be overlooked. Here, the machine itself is permanently located, usually in the cellar of some large office building or apartment house, and pipes are run to the various rooms. The cleaning is then done by means of hose and tools—no other apparatus of any kind being required in the rooms.



Sky Scrappers of Lower New York

*Wm. H. Fox*



## WIRING AND INSTALLATION CONTRACTORS

### West of Broadway and Fifth Avenue

Amsterdam Ave 452—C A Christesen  
 Amsterdam Ave 648—H Blumstetter  
 Broadway 335—Park Sullinger  
 Broadway 379—J S Bihin  
 Broadway 1176—The Chas L Eidlitz Co  
 Broadway 1269—S W Electric Co  
 Broadway 2270—A Ostrom Rowe  
 Broadway 2382—H S Beidleman  
 Broadway 2742—H Reinwald Jr  
 Church St 50—L K Comstock & Co  
 Columbus Ave 220—T F Carr  
 Columbus Ave 549—Hoffman & Elias  
 Columbus Ave 649—E Craske  
 Cortlandt St 26—C Cleveland & Ryan  
 Cortlandt St 39—Blackall & Baldwin  
 Cortlandt St 39—Electric Cons & Supply Co  
 Cortlandt St 84—Bleyle Elec Co  
 Duane St 172—Jas F Hughes Co  
 Eighth Ave 2719—Franklin Elec Co  
 Fifth Ave 65—L A Whitney Elec Co  
 Fifth Ave 75—H M Walters  
 Fifth Ave 503—Flucker & Keedwell  
 Greenwich St 183—Thomas & Johnson  
 Greenwich St 207—F A Frey  
 Greenwich St 235—F C Ross  
 Hudson St 660—Edw S Eaton  
 Sixth Ave 110—J V Johnson  
 Sixth Ave 419—C A Pinkham  
 Sixth Ave 617—Zenker & Siems  
 Sixth Ave 780—C C Bohn Electric Co  
 Sixth Ave 943—John M Flint  
 Seventh Ave 192—Emil Christensen Inc  
 Seventh Ave 727—Conduit Wiring Co  
 Seventh Ave 2290—Nathan Zolinsky  
 Thames St 27—Watson Flagg Eng Co  
 Thames St 27—McLeod Ward & Co  
 Varick St 132—Eugene P Etzel  
 Warren St 73—J P Hall  
 Warren St 96—Wm F Duffy  
 West St 110—Knickerbocker Electric Co  
 West St 463—Western Elec Co  
 West 14th St 130—The Electrical Contracting Co  
 West 17th St 136—Harry A Hanft  
 West 21st St 35—W J McClure & Co  
 West 26th St 54—Louis Freund  
 West 28th St 11—Thos L Dillon  
 West 30th St 110—Tucker Elec Con Co  
 West 31st St 109—Landous Elec Equip Co  
 West 33d St 25—Harry Alexander  
 West 33d St 269—E J Elec Installation Co  
 West 34th St 45—Foot & Powers  
 West 38th St 72—A J Buschman Co  
 West 42d St 25—Russell Haynes Electrical Co  
 West 42d St 2935—Germonio & Turner  
 West 42d St 112—Oberg Blumberg & Bleyer  
 West 45th St 100—F A Bolding  
 West 46th St 422—Frank Pison  
 West 72d St 179—T J Kaufman & Co  
 West 111th St 147—Mariposa Electric Co  
 West 116th St 277—Lewis S Davis  
 West 134th St 314—M Kohosoff  
 Wooster St 12—Durbrow & Heame Mfg Co

### East of Broadway and Fifth Avenue

Beckman St 74—Jordan Bros Inc  
 Broome St 105—B H Weinberg  
 Cedar St 16—Wm Truswell & Son  
 Dover St 8—E W Hazzer  
 East 7th St 138—H A Schreiber  
 East 9th St 65—George D Beinert

East 9th St 51—B W Sandbach & Co  
 East 22d St 27—Hunt & Morgan  
 East 22d St 113—J Livingston & Co Inc  
 East 23d St 10—Porsth Elec Co  
 East 23d St 42—Kimball Elec Construc Co  
 East 23d St 145—Bateman & Miller  
 East 25th St 122—Isador Fajans  
 East 28th St 114—Burkart Elec Co  
 East 30th St 13—Geo H Shuman  
 East 37th St 207—Reis & O'Donovan  
 East 42d St 39—Edwards Elec Con Co  
 East 42d St 45—Cowden & DeYoung Inc  
 East 55th St 147—Morris Levi & Co  
 East 57th St 426—Behlert Elec Co  
 East 59th St 57—Stanley & Ruth  
 East 72d St 107—E J Dustman  
 East 77th St 429—Edw Zenker  
 East 88th St 176—M Strompf  
 East 125th St 13—L L Strauss  
 East 125th St 31—Leo S Stern  
 East 125th St 77—Peter Jansen  
 Fourth Ave 373—Hatzel & Buehler  
 Frankfort St 2030—J F Bidstrup & Co  
 Fulton St 44—E Klein & Bro  
 Fulton St 90-98—Fulton Electric Co  
 Fulton St 227—Edward B Stott & Co  
 Fulton St 237—General Electric Inspection Co  
 Gold St 29—Mfrs & Inventors Elec Co  
 Grand St 235—Joseph Wainrob  
 Great Jones St 38—Geo Weber & Bro  
 John St 52—Alfred Whiteley  
 Lexington Ave 1249—J E Woelfe  
 Liberty St 123—G Curt Kastner  
 Liberty St 126—S Arthur Brown  
 Madison Ave 314—Nimis & Nimis  
 Madison Ave 959—Kendelhardt & Morris  
 Madison Ave 1122—F W Cohn  
 Park Ave 103—Stehlin-Miller-Henes Co  
 Park Ave 1030—Guarantee Electric Co  
 Third Ave 221—Maurice Young  
 Third Ave 670—Silverman Bros  
 Third Ave 1021—E Kalkan  
 Walker St 84—M F Finkelstein  
 Wall St 2—Edwin C Gee  
 Wall St 99—Chas Davidson

### Bronx

Baker & Fox—313 E 141st St  
 Blackman & Guttman—226-28 East 144th St  
 Bogan Irving A—4192 Park Ave  
 Evans & Kaestner—803 Intervale Ave  
 Hinners F J Jr—585 East 135th St  
 Kips John—101st St and 3d Ave  
 Kirschoff C Arthur—584 East 163d St  
 Landy Jacob—673 Elton Ave  
 Mangum H I & Co—333 East 162d St  
 Ross E L—350 East 138th St  
 Ryan Geo E—603 Tremont Ave  
 Schwarzler M & Son—400 E 167th St  
 Vielberth Jos F—1243 Taylor Ave  
 Woods Lewis H—2355 Jerome Ave

### Yonkers

Excelsior Gas & Elec Fixture Co—42 Warbur-  
 ton Ave  
 Imrie & Underhill—Bronxville N Y  
 Nugent A W Co Inc—83 Warburton Ave  
 Seaboard Elec Co—32 N Broadway  
 Westchester Elec Equip Co—34 N B'way

# *The Edison Monthly*

*August*

*1911*

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VOLUME IV

NUMBER 3

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# Editorial

## *The Edison Monthly*

Published by

## *The New York Edison Company*

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Striking figures to prove the superiority of electric locomotives over steam have been given by the chief electrical engineer of the New York, New Haven and Hartford Railroad. Especially noticeable are those relative to the reduction of delays. From November 2nd to 23rd, in 1909, 66,000 miles were run by electric locomotives, with only three minutes of delay. In fact, he reckons that in respect to delays, the electric service is 133 per cent better than steam.



A remarkable document has been received by the British Home Office, in the shape of the report of the Factory Inspection Department. This points out the fact that during the years 1907-1909, a period noted for the greatly increased industrial use of electric power, there was a corresponding decrease in the number of accidents.

To the introduction of the electric motor drive, the report credits the fewer casualties. The consequent possibility of arranging shafting in

convenient lengths and positions, or the substitution of a direct drive for each machine being commended, while the ease with which any machinery can be brought to a stop is pointed out as another factor of safety in the electric drive.

Furthermore, the document dwells upon inadequate lighting as a source of accident. A well-lit factory means fewer accidents, less waste of material, better product and a far more cheerful and energetic set of workmen.



The Amir of Afghanistan has given his august consent to the construction of a hydroelectric plant, current from which shall light the city of Kabul and run its leather factories and woolen mills.

Likewise we are told that concessions have been granted for the electric lighting of Constantinople. Telephones are used in the remotest plantations in interior Mexico. And so it goes.



One must travel far afield these days to find the romance of the primitive. The trail of the electric current is over all.

It remains for the poet to find the romance in the new order of things, —to sing of the swiftly whirling turbine that brings light to a thousand souls and lifts the heavy burden from their feet.

Primitive industry, the potter at the wheel, the man with the hoe,

they have had their bards. But where is the poet who will sing us the automatic-screw machine?



An electric tricycle has been invented abroad and is already used by two large stores in Paris for delivery work. Devised entirely for city use, rather than for rough roads, the tricycle dispenses with the heavy construction of the foreign-made electric, thereby saving tires and current.

This Beff tricycle is capable of running from thirty to forty miles on a single battery charge, costing seventy cents at the Paris rate of fifteen cents per kilowatt hour. The speed of this vehicle is not more than ten miles an hour, which, however, is fast enough for the kind of work for which the tricycle is intended. The one-seated delivery type weighs a little more than 1,000 pounds and can carry 350 pounds load, besides the driver.



This European development, prophesied by Edison two years ago, will certainly bear watching. One of the constant demands of vehicle dealers has been for a small delivery wagon to meet the needs of the retail dealer. In the last few months several of these lighter models have been placed upon the market. But there seems no good reason why an electric tricycle should not do as a rival for the noisy, cumbrous non-electric motorcycle now seen upon our streets.

One of the most suggestive of foreign electrical publications, is the *Electrics*, the official organ of the Society of Power Company. As the title denotes, its pages are devoted to acclaiming the triumphal progress of electric power throughout the United Kingdom. Thus we learn that, in England, electric heating is now being successfully used in connection with printing presses, cardboard machines, stone and leather presses, and small bakers' ovens.



A London wholesale flour merchant finds that an electric oven for sample loaves gives the best results, while on the Continent, it is stated, several electric bake-houses are in operation. Since this equipment is light enough so that it need not be placed in the cellar, the advantages in the matter of ventilation are obvious.



These are days of insurgency indeed. No longer does that august body, the Senate of these United States, sit and suffer in dignified silence and broadcloth, while the thermometer mercury seeks the higher life. Sacrilegious hands have introduced electric fans within the hallowed walls of the Senate chamber itself.

It now remains for the statisticians and scientific managers to figure out the increased efficiency of legislation accomplished by cooling the heads of the lawmakers.





Glimpse of the Municipal Building During Course of Construction  
World and Tribune Building in the Background

E. H. H. '01

## Some New Buildings on Edison Service

THE giant whistle blowing a final "all-ashore," stewards hustling baggage to different staterooms, deckhands making all fast for the rough weather outside, while tiny tugs attach their lines to warp the big vessel from her dock,—the indescribable confusion of the last good-bye on sailing day of the great ocean liner.

Hardly a day goes by that some New York pier does not witness such a scene. A custom, almost as old as the trans-Atlantic passenger traffic itself, is the sending of some gift to the friends about to leave. Although flowers are frequently used, nothing has become as popular as the basket of fruit designed especially for this purpose.

So valuable has this small branch of the grocer's trade grown that



New Building, Charles & Company  
Madison Avenue and Forty-third Street

several of the large stores in the city make a special feature of their "bon voyage" baskets, maintaining a corps of men who are adepts at packing them. The steamer-basket practice began about twenty years ago and has developed remarkably, so that sometimes nearly 250 baskets have been sent by a single firm to a departing steamer. The average is 200.

A pioneer in this trade is Charles & Company, on Madison Avenue and Forty-third Street. Its growth from a small fruit store only a few years ago has been rapid, and recently a handsome fourteen-story office building of dark brick with white limestone trim-

ming has been erected by the firm. The first floor is occupied as a store, with the shipping department in the rear.

Every piece of machinery in the

building is driven by electricity. The ice plant, with a capacity of four tons of ice a day, is operated by a fifteen-horse-power motor. The firm trademark, Mercury carrying a basket of fruit, is shown in electric lights on the south side of the building.

Long before there was a "millionaires' row" on Fifth Avenue, when Central Park was just awakening from the wilderness days, and before the towers of masonry had sprung up along Riverside Drive, the conservative gentry of New York built itself homes about certain little parks in what is now the downtown section of the city.

These aristocratic old houses have stood for a few months ago a twelve-story structure of this description was opened at 74-76 Fifth Avenue, two



New Loft Building at 137-139 West Twenty-fifth Street. Edison Service is Used Here

undoubtedly stand on for years to come if they had nothing more to contend with than the inroads of time. One by one, these old "brown-stone-fronts" on our squares have fallen before the house-wrecker's axe and on the sites tall loft buildings or apartment houses have thrust themselves toward the sky. Some of the former homes of the aristocracy have been more fortunate than others and have been taken over by clubs.

Washington Square, once a famous residential center, is now almost the heart of the garment-making industry. The very source of Fifth Avenue is among loft buildings. Only



handsome old residences being demolished to make way for it.

It is but three blocks from Washington Square and half a block from Fourteenth Street. This particular site was chosen because of its accessibility to transportation lines. The builder and owner is Henry Corn, of 347 Fifth Avenue. Edison Service is used for illumination and running four elevators and a pump.

In the center of the wholesale fur district, where the garment-making industry also holds forth, building operations have been active. In Twenty-fifth Street, just off from Sixth Avenue, three new twelve-story, fire-proof loft buildings have recently been opened. They are at 137-139, 147-149, and 151-153 West Twenty-fifth Street. All three are on Edison Ser-

vice, using current for illumination, factory horror and was subjected to elevators and pumps. Many of the a rigid inspection.



Another Loft Building Invades Lower Fifth Avenue. Current for 74-76 Fifth Avenue is from the Edison Mains

tenants use motor drive in manufacturing.

One of the interesting features of the building at 137-139 is that all of the windows on the front swing on center pivots at the top and bottom of the sash. The picture shows some of them standing open. This arrangement permits a greater circulation of air in the lofts and is much easier to manipulate than the double sash.

The building at 147-149 is constructed from bottom to top without the use of a single inside post. Instead of these steel beams span the ceiling from side to side. The architect planned to eliminate the posts, as they not only take up valuable space but also serve to obstruct light and air.

This building was completed shortly after the Triangle shirtwaist





The Fourth National Bank, Now on Edison Service

# The Fourth National Bank

**T**HE Fourth National Bank of the City of New York, one of the leading financial institutions of the country, was organized in 1864 and two years later entered the premises on Nassau Street, between Pine and Cedar, where it has carried on its business for nearly half a century. Extensive alterations, which have just been completed, make this historic old building one of the most up-to-date structures in the banking district.

The Fourth National was organized under the original National Bank Act of 1863 and had its first offices in the Government Building at 29 Pine Street. Among its founders were George Opdyke, Mayor of the city; Peter Cooper, Morris Ketchum, Horace B Claflin, William H Strong, David Dows, John A Stewart and Benjamin H Hutton.

The alterations of the building have not to any extent changed the general appearance of the exterior of the structure. The architecture which made the bank one of the imposing buildings of the early days was extremely simple, and now, among its neighbors of latter-day skyscraping pat-

tern, the old "Fourth National" holds its place by its dignified appearance.

The only outward change is in the arrangement of the main entrance, which has been moved to the street level. On either side of this main entrance broad marble steps curve to the vestibule of the banking floor one flight above the street.

The institution was one of the first to adopt a private electric plant in the building, and for many years current was generated on the premises. Two steam generators, one of fifty kilowatt and one of seventy-five kilowatt capacity, were installed. In making their other improvements, the bank directors decided to do away with the old plant and in March of this year they signed a contract for Edison Service. Twenty-five hundred lights and fifty horsepower are supplied from the mains of The New York Edison Company.



Abandoned Private Plant of the Fourth National Bank

## Edison and the Drama

THOUGH the name of Edison is perhaps conceded to be connected with more different kinds of activity than that of any other man to-day, still it is somehow difficult to imagine him as contributing also to the development of the stage. Yet Brander Matthews, professor of dramatic literature at Columbia, who has lectured often and written much about the work and development of playwriting, when speaking before a large audience lately, declared:

"Ibsen has been credited with doing away with the soliloquy. I should say the credit belonged very largely to Mr Edison, for illumination, first by gas, then by electricity, has made possible the modern stage and the elimination of many old-fashioned devices of the playwright to keep the audience informed."

Further confirmation of the influence of electric lighting on the body of the drama itself is to be found in Ludovic Celler's account of

stage conditions in France during the seventeenth century. "Artificial light," he states, "creates a



Forty-third Street Entrance of the George M Cohan Theatre. Seven Signs, illuminated by 2,500 lamps, are on the Broadway and Forty-third Street Sides of this Theatre

realm of convention, where an imitation is more easily accepted and where the eyes are less exacting; a compromise is attained between fact and fiction. Artificial light is what has most contributed to the progress of theatrical presentation."

"Since the scene painters have gained the skill needful for the satisfactory and more or less realistic presentation of interiors and exteriors, and especially since the invention of the electric light has made it possible to illuminate every corner of the stage, the conditions of performance are now very similar throughout the civilized world."

"In considering the matter of the comparatively slow development of early theatrical effects," declares Mr Matthews in his "Study of the Drama," "we ought to give full weight to the pressure exerted on the playwright by the changing conditions of the playhouses of successive centuries. By the size of the theatre, for one thing, which may be so huge as to forbid the author's choice of any but broad and simple themes, by the elaboration of heavy scenery, which may impose on him the duty of compacting his plot so that he will need only few changes of place,—or by the improved modern modes of artificial illumination (candles first, then oil-lamps, gas, and finally electricity), all of which have wrought in turn significant modifications of dramaturgic method.

"The historians of English literature have scarcely yet attained to a clearly fair perception of the way in which plays were acted under the Tudors, and they have not yet seized the full significance of the changes which resulted during the Restoration from the introduction of

painted scenery and of artificial light.

"... And we should discover that a very striking change in the practices of the playwrights was brought about in the second half of the nineteenth century, when the stage was at last abundantly lighted in every part by electricity and when the curving bow of the footlights was cut back to a picture-frame curtain.

"In Paris, until the middle of the eighteenth century, the old custom



The Lobby of the Wintergarden. The Auditorium of this Theatre was Formerly the Tanbark Arena of the Horse Exchange. The Largest Theatre Sign in New York is Over the Entrance. It is Made Up of 4,000 Lamps

was followed of allowing a portion of the audience seats directly upon the stage. As many of these Italianate theatres were intended to serve also for the performances of opera with its customary spectacle, they were much larger than the buildings which earlier had been found satisfactory. It was difficult to light the stage adequately with the sputtering candles or the feeble oil-lamps which were then the only means of illumination. Probably this is the one reason why the



stage was made to curve out into the audience, far beyond the proscenium-arch in which the curtain rose and fell.

"In England, this projecting area between the bow of the footlights and the line of the curtain was called the 'apron,' and the best-lighted central spot was known as the 'focus.' It became necessary for the actors to present every important moment of the piece out on the apron, and as near to the focus as possible, because it was only there that there was sufficient light to enable the spectators to perceive their play of feature.



Reservoir and Motor-Driven Pumps of the Cohan Theatre



The Pringle Dead Front Switchboard of the Cohan Theatre; the First to be Installed in New York. Dead Front Boards are Now Required in All New Theatres

"Years ago, upon the introduction of gas, the 'apron' gradually disappeared, for it was no longer necessary for the actors to advance into focus to make themselves visible. Later on, even the 'aside' lost prominence, for upon the advent of the incandescent bulb it was no longer necessary for an actor to dissemble in the fashion demanded by plays of the early nineteenth century, for facial expression, being clearly shown, speaks for itself.

"The assertion has been made that the relinquishing of the soliloquy is to be ascribed to the influence of Ibsen; and it may be admitted that the Norwegian dramatist has been masterly in the adjustment of his methods to the picture-frame stage. But we can shift the real responsibility for the banishment of the soliloquy a little further back; it does not lie on Ibsen's shoulders, but on Edison's,—since it was an inevitable consequence of the incandescent bulb."

# Modern Candy Making

**V**ERY few of the people who open a dainty box of candy have any idea of how much painstaking labor has been expended on it, from the silk cover-bow to the last delicious morsel in the bottom layer, to make it ready for their enjoyment.

To prepare over a million dollars' worth of candy a year is a feat which can be accomplished only by the most up-to-date methods. Realizing this, Park and Tilford are using only the most modern of equipments in their factory at Seventy-second Street and Columbus Avenue, New York City. Almost throughout electricity is the motive power.

Electric flat-irons smooth out the fifteen hundred dollars' worth of silk ribbons which every year goes into the elaborately tied bows; countless chocolate creams pass on the endless chain through an electric dipping machine; and in the "mixers" four tons of candy a day are churned to the proper consistency.

On the tables where are made those candies of such intricate design as the machine-dippers are unable to produce, electrically warmed bowls keep the chocolate always at exactly the right temperature for "dipping."

The forty girls who do this have each grown wonderfully expert in making a certain design, as they are required to do nothing else. With flying fingers they trace the hearts and squares and diamonds on the one hundred and forty-nine different

kinds of candy which are hand-dipped and later are to be carefully packed and then shipped off to every imaginable quarter of the globe.

All the world knows the Jordan almond, but very few have ever seen it in the making.

Into a huge, half-open, tilted caldron is first put a bushel or two of



A Mechanical "Dipper," Which, in the Case of Candies of a Uniform Shape, Can Take the Place of Many Girls Working on the "Dipping Bowls"

the bleached nuts. Then the frame, —operated by an electric motor,— is set in motion and while it revolves, causing the nuts to rush over themselves in a streaming cataract, the chef stands ready with his syrups which he pours in a little at a time, till presently the nuts have taken on their well-known coating of hardened candy.

Park and Tilford put up over five hundred different varieties of candy which are made, packed and shipped from their factory at Seventy-second Street and Columbus Avenue at an average rate of six thousand pounds a day.

On account of the high state of perfection to which they have brought the art of packing, the delicate candies, which sometimes are welcomed at lonely sheep ranches in the Australian bush-country after a two months' journey from New York via Melbourne, arrive in practically as

good condition as did the beribboned box which was taken from a liveried messenger on upper Fifth Avenue.

As a general rule, the candies of Park and Tilford are packed in boxes of three layers, though the weight-units of the 150 different styles of boxes, when filled, vary all the way

from ten pounds to one-quarter of a pound.

The making of confection is not as haphazard an operation as might be supposed. For instance, when one picks up a semi-circular chocolate nut-cream upon which rests a sugared violet, it has not at all been assembled in this manner because these materials fell



Coating-Bowl Wherein are Made Jordan Almonds, Sugar Almonds and Similar Candies which Require an Even, Hard Coating



An Automatic Candy Filler, Which, at the Rate of Twenty-five Every Second, Fills Sugar-Coated Molds with Butter-Scotch Syrup





**A Corner of a Packing Room Where Four Thousand Pounds of Candy a Day are Packed**

of the leading home magazines decided to get out a display Bridal Number, and wanted a comprehensive article on bridal cake decorations, the chef at Park and Tilford's was called upon as the source of all that was newest for decorative confectionery.

This man is acknowledged to be the originator of the design for each one of these well known forms of candy which are sold the world over, from New York to Sydney and from the Newfoundland coast to Panama and the West Indies.

most readily to hand, but because this combination both as to taste and color had been carefully planned out beforehand by an artist.

Really good candy does not happen—it is made, and toward the making must go the finest of raw materials, the most accurate and unflinching of such mechanical aids as may be brought to bear on the questions of measuring, weighing, dipping, and mixing. It is also to be considered that this takes no account of the services of the artists who depend upon these different combinations.

And so it was that when one

tonery. This man is acknowledged to be the originator of the design for each one of these well known forms of candy which are sold the world over, from New York to Sydney and from the Newfoundland coast to Panama and the West Indies.



**Cream-Mixer. This Machine Mixes the Ingredients Which Make the Fillings for Chocolate Creams. Its Normal Capacity is Over 300 Pounds**



## Fourth of July Lighting

THESE pictures show the beautiful "safe and sane" Fourth of July illumination on the New York City Hall and the Bronx Bor-

ing fireworks. This year the New York City Fathers expended \$31,600 of the city funds for fireworks. For half of that sum it is probable



New York City Hall, Illuminated

ough Hall. The lighting on these buildings and in City Hall Park, New York, was the contribution of The New York Edison Company.

It was the object of the Company to show how Independence Day can be celebrated throughout a city, at the same time dispensing with the life and property destroy-

that every park in New York could be beautifully lighted for two nights in the manner shown by the accompanying pictures.

To the thinking observer there was a strikingly obvious comparison between this charming illumination which lasted the whole evening and the momentary flashes of Roman

candles and rockets. The former was an attraction which pleased the eye as long as one cared to look at

The illumination on the New York City Hall consisted of two bands of eight-candle-power incandescent



**Borough Hall, the Bronx, Presented a Gala Appearance Decked Out in Fifteen Hundred Eight-Candle-Power Lamps. They Girdled the Building in Two Bands of Blue and White Light**

it, while the latter was but a transitory gleam of colors in the sky accompanied by a few explosions.

lamps encircling the entire building, one at the roof cornice and one at the lower ledge.

### "The Window Opposite"

#### An Advertising Experiment

THE window opposite really started the game. It was a most lonesome window, for there it stood day after day, and although literally thousands passed hourly along Broadway, nobody ever took any notice of it. Finally its "deadness" became irritating to those who had to sit facing it for several hours each day.

of shirts, collars and ties. Window dressing not being part of editorial training, this was undertaken purely as an experiment, and a very valuable one it proved to be.

The enterprising person evolved the idea that an electric fan could be used to swing the ties back and forth across the window in such a way as to catch the eye and tempt the curiosity of the passing crowd. A nearby store which deals in electric novelties offered to provide the ma-



The "Window Opposite" as it Appeared During a Busy Noontime Previous to the Introduction of the Electrical Display



After the Installation of the Fans About 6,000 Persons Daily Paused to Look. The Display was Furnished by the Broadway Novelty Company

So it was not surprising that one morning the enterprising person jumped up, exclaiming, "Eureka, I've got it. We'll put an electric display in that window."

"But," objected the conservatives, "that is a shirt store. What has electricity to do with shirts?"

"That's just the point," rejoined the enterprising person. "We'll make electricity show off the shirts."

Thus the window opposite presented the problem, how could electricity be used for a daylight display

material for the experiment. Accordingly, the window was arranged with a fan to blow the ties, on the assumption that a moving object catches the eye more quickly than anything else would.

It was soon evident that the experiment was attracting attention, so a small boy was summoned, placed upon a soap box, and paid to count the number of people who stopped to look at the window since the new display had been introduced. The count was begun at 11.15 in the

morning. By a quarter to six o'clock at night 4,598 people had been made aware that behind the "window opposite" was a "live" store. On the second day, for the same period of time, 5,044 passers-by had stopped to look at the window. Of these, 2,094 stayed briefly, while 2,876 remained gazing enough to examine the wares offered for sale.

The total cost for current consumed in this window experiment

to have made nearly ten thousand people stop, look and listen, with the aid of an oscillating fan and thirty cents' worth of current, was a valuable "experiment."

## A Dairy Window

**W**HO ever heard of a dairy window that was anything but commonplace? Your earliest and latest memory of these prosaic little places is probably like



A Barnyard Scene Used as a Dairy Window Display. The Eyes of the Animals are Electric Light Bulbs

was fifteen cents a day, the attention obtained was far more direct than that which could be gained by any newspaper advertising, while its cost was so little as to be almost negligible. It should also be borne in mind that the material dealt with was very crude, and that an editorial staff is not trained to dress windows. A man skilled in this art could follow out the same idea far more effectively. But with all its limitations,

that of most of us. Almost involuntarily there comes before your eye a picture of a spotless window with its woodwork painted white, a white oilcloth on the floor, a row of shining milk bottles, dressed in military order, a basket of eggs and perhaps a dish of potcheese, and a sign "Fresh Buttermilk."

Your impression may be of wholesome cleanliness, but there is no distinctive or original feature about a



single one—nothing that would cause you to give any one in particular a second glance or thought. At last, however, there has been found a really original dairy window,—just one, and the only one we have ever been able to find.

It is the idea of Dr George Starr White, proprietor of the Woodlands Farm Dairy of Yonkers. The exhibition in this window consists of a group of domestic animals, excellently made and as natural as life. There are a cow, a pig, a dog, a cat, several hens and a peacock. In seeking for specimens to carry out his original idea Dr White's search led him across the Atlantic and into the uplands of Switzerland. The cow in his window is a real Guernsey, imported from Switzerland, and besides being one of the most perfect models in this country it is also one of the finest specimens of a Guernsey.

This cow was selected from a large herd and the minutest measurements taken, while the animal was still alive. From these measurements a papier-mache model was then made, the cow being killed and skinned and the skin placed on the papier-mache model. The remarkable thing about this cow is the fact that it can be milked. The inside of the udder is a reservoir which holds at least a gallon of milk.

The "vigilant collie" is also from Switzerland and is a prize dog. The model was made in much the same manner as the cow. The pig is as lovely and clean as Casey's,—the one he kept in the parlor. The Angora pussy-cat looks as if she would purr if you would reach down and stroke her pretty head. The peacock has

more of a tale attached to it than the one apparent. When in good health and enjoyment of life this proud bird led a happy existence on the estate of Mr Samuel Untermyer. From morn till eve it stalked majestically about the beautiful gardens, the most admired creature on the whole estate. But alack! there came a day when it fell ill of dyspepsia and died, then—the taxidermist.

The hens in this unique window are made over wood and papier-mache models. The raffia grass which covers the floor is soaked in a fireproof liquid. Perhaps the most wonderful thing about all of these animals is their eyes. Behind their eyes of glass are tiny electric light bulbs which light now and then, giving the animals a most startling and mysterious appearance. The wiring to the eyes is all done through metal tubes and it was only after the greatest difficulty that the installation was finally made to pass the fire underwriters. Dr White has in addition to the figures in the window a woolly little white lamb that bleats most realistically and a goat to which man has given power of speech almost as good as that which nature originally gave it. The last two were also imported from Switzerland.

### The Fourth of July at Yonkers

THE New York movement for a "safe and sane" Fourth of July extended to Yonkers with excellent results. Mayor Lennon, who headed the agitation there, suggested the lighting of the City Hall to The Yonkers Electric Light and Power

Company. The scheme met with instant approval and although there were but four working days left before the Fourth, an adequate force of men were set to work with all possible speed.

all 1,700 lamps of the eight-candle-power carbon type were used.

There is probably no City Hall in the United States built on a more imposing site than is the one at Yonkers, and when aglow with nearly



Fourth of July Illumination on Yonkers City Hall

Five ex-cello flaming arc lamps were placed in the tower, one in the center inside and one in each of the openings. Strings of lights were run down each corner of the tower and two strings were run all the way around the building at the roof cornice. In

two thousand lights it could be seen for miles up and down the Hudson, as well as from all the surrounding country. The residents as well as the press of Yonkers were unanimous in their praise of the illumination.

## The "Suburbaning" Contest

A DEMONSTRATION of electric pleasure vehicles out of the ordinary was the "suburbaning contest" held on June 14th by the Electric Automobile Dealers' Association of New York City. Differing from usual runs, the object was neither speed nor distance, but rather

which proved later to be a Detroit electric, driven by R E Darling.

The route laid out covered 36.6 miles, the contestants starting from Columbus Circle, going over the Queensboro Bridge, through Elmhurst, Forest Hills and Jamaica to Bellerose, where luncheon was served.



Two Baker Electrics Owned by The New York Edison Company, Entered in the Recent Electric Suburbaning Contest. The Car to the Left Made the Highest Record for Speed

the exposition of the virtues of the electric for suburban use on the part of the ordinary individual.

Four experts covered the course in the various cars entered and each of these men estimated the time in which the trip should be made for a genuine "pleasure" tour, which means not more than fifteen miles an hour. The average of the four was set as the ideal time for the course, and the prize awarded to the car which came nearest to that,

The return trip took the cars through Great Neck, Little Neck, Flushing and Corona to Elmhurst, and again over the Queensboro Bridge to the starting point.

Entrants were divided into two classes: Class A, Gentlemen Drivers; Class B, Lady Drivers.

Eleven cars entered; two Rauch and Lang, four Detroit electrics, and five Baker electrics, two of which were entered by The New York Edison Company. Since the prize did

not call for strength or the skill of professional chauffeurs, ladies were welcome, and Mrs C Y Kenworthy drove one Rauch and Lang car, while Mr Kenworthy piloted another.

Although it was known that the rate of speed for which the prize would be awarded lay somewhere near twelve miles, on the trip out, the temptation was too great for the drivers, who with but one exception, the entrant that afterwards proved the winner, let out their little cars to an average speed of about fifteen miles. On the whole, weather favored the contestants, for while recent rains provided plenty of mud through which to travel, dust was almost entirely eliminated, so that the trip itself bore out the name of the electric "pleasure" vehicle.

No dashing through startled town at a hair-raising speed was this, accompanied by the slaughter of too curious dogs and bewildered fowl, but a sight-seeing expedition, through charming country at a speed considerably above that of a good fast trot, but still not so great as to turn the landscape into a blur of houses and trees.

The return trip was more a test in self-restraint, for every one realized that the time coming out was less than the estimated normal for which prize was to be given. One of the two Edison cars entered gave up all chances of winning, and started back for town at high speed, just to see how quickly the run could be made. This roadster arrived at Broadway and Fifty-ninth Street just an hour ahead of all the rest. This was rather unexpected, since the particular run-about which the company values for

speed was paying its annual visit to the repair shop.

After a consultation among the judges, the normal time for completing the run was announced as three hours, thirty-one minutes, while the car nearest approaching this was a Detroit whose record was three hours, twenty-seven minutes. The eleven electrics then proceeded to parade down Broadway to Twenty-sixth Street and up Fifth Avenue again to the stopping point. Probably the most noticeable feature of the run was the absolute ease with which every car covered the entire course. In spite of roads, some of which were none too smooth at best, and others badly washed by the recent heavy rains, not a single case of tire trouble or any other kind of disability developed. Needless to say, no one had to stop and recharge.

"The pen is mightier than the sword."



Two Studebaker Electric Trucks, with a Capacity of Five Tons Each, are Used for Local Delivery by the Anheuser-Busch Brewing Company. They Gave Fifteen Months of Continuous Service Without Undergoing a Single Repair. The Trucks Made Deliveries Between Canal and 110th Streets





Electric Taxicabs in the Courtyard of the Automobile Company in Berlin. These are Known as the N A G Vehicles, Being Made by the Neuer Automobil Gesellschaft

### Electric Taxicabs in Berlin

SOMEWHAT to the surprise of American visitors, electric vehicles are used successfully for taxicabs in Berlin. These now number some three hundred, and were first introduced in 1899. With time and hard usage, a type specially suited to this service has been developed. The most frequently seen is the so-called N A G car, made by the Neuer Automobil Gesellschaft.

These vehicles are rated at forty horse-power, and forty-four cell storage batteries are employed, which can be charged in five hours. Their speed is thirty kilometers per hour, while the mileage is from a hundred to a hundred and twenty kilometers on a single charge.

### Electric Delivery Wagon Performance

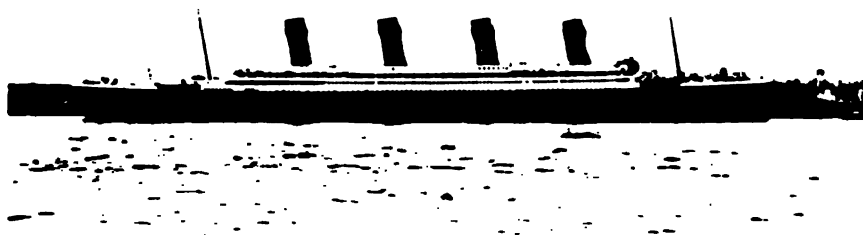
A RECORD has been kept of the first week's work done by a thousand pound delivery wagon made by the Anderson Carriage Company for Bonwit, Teller & Company of New York City.

On the first day 46.1 miles were covered, including 68 stops; for the second, 51.7 miles and 78 stops; on the third the record is 42.3 miles with 81 stops; the fourth is 62.8 miles and 49 stops, the fifth the same; the sixth 66.6 miles with 48 stops, while the last figure is 64.5 miles with 40 stops.

# Electric Equipment of the Olympic

**N**OT so many years ago, in the days when sailing packets offered the only means of trans-Atlantic passage, a flickering oil lamp swinging from the cabin beams, and in constant danger of being extin-

completely equipped in every detail and often requiring a whole corps of men to operate is found on every vessel and ranks in importance second only to the ship's driving machinery or possibly the culinary department.



The "Olympic" Going Down the North River. The Electric Plant of this New Mammoth Makes Current Enough to Keep 64,000 Tantalum Lamps Burning

guished with every roll and pitch of the vessel, furnished the only light for the journey across the great ocean. In later days, when steamships had begun to displace the old packets, the oil lamp gave way to a gas jet, great tanks of gas being carried on each vessel. The supply of gas was husbanded almost as carefully as was the water supply.

In brilliant contrast to this primitive illumination is the lighting of one of the great liners of the present day. A modern generating station

Of all the great liners that plow their way from port to port none has so complete an electrical installation as the new White Star liner, "Olympic," which recently made her maiden voyage between Southampton and New York. In her modern deep-sea electrical plant enough current to supply light and power for a fair-sized town is generated. It is all required to meet the needs of this great ship.

The electrical installation consists of 11,000 tantalum lamps, about one

hundred and fifty motors and about four hundred and fifty heaters. Hundreds of miles of wire convey the current on its various ways.

The generating station of the "Olympic" is located far below the water-line in a water-tight compartment of its own. It is well aft and extends over sixty-four feet of the length of the vessel, occupying the entire width of the ship. The plant consists of four sets of 400 kilowatt multipolar generators, each driven by a three-cylinder compound-vertical inclosed "Allen" engine. An emergency plant is located on the saloon deck, high above the water-line, of sufficient capacity to supply all the lights, operate the signal apparatus and run the boat hoists. It is intended for use only in case the main plant should for any reason break down. It consists of two thirty kilowatt generators. The generating station and the electrical equipment cost \$390,000.

Electricity does practically everything except the driving of the ship's three great propellers. In addition to lighting the ship, it is used to operate the deck cranes, the cargo, boat and engine-room winches; the four passenger elevators; the lifts for the mails and the pantry supplies; the pneumatic conveyor; the wireless apparatus; the telephone system; the gymnastic appliances; the refrigerating plant; the kitchen utensils, such as dough mixers, potato peelers, knife cleaners and grinders, and the roasting spit; the sluice valve operating gear; the great steam whistles; the sounding machine; the illuminated signs; the

clocks; the machinery for closing the water-tight compartments; the helm indicators; the bells; the cabin fans; the heaters; the irons; and twelve powerful blowers which provide ventilation for the stoke holds. The motors are from one-half to forty horse-power in size and the heaters are from 750 to 2,500 watts each. The cabin and saloon lights are all set in beautiful cut-glass fixtures.

The "Olympic," the largest ship in the world, is 882½ feet long, has a beam of 92½ feet and a displacement of 66,000 tons. Her four funnels each tower 62 feet above the casings, or a total distance of 165 feet above the keel. A standard railroad train could easily pass through them, with clearance enough for curious passengers to stick their heads out the windows.

The vessel draws 34½ feet of water, has 11 decks and 15 water-tight bulkheads. The largest of the steel plates used in the hull is 36 feet long and 1½ inches thick. There are accommodations for 2,500 passengers, and a crew of 850. The "Olympic" was built by Harlan & Wolff, at Belfast, Ireland, and cost the White Star Line \$10,000,000.

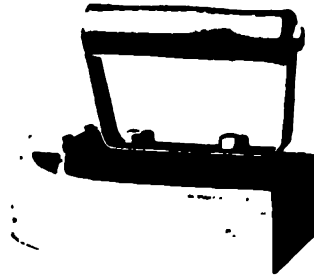
For the supply of power and light during the construction of the "Olympic" the builders set up a special generating station. The big vessel was beyond reach of the regular feeders running from the generating plant in the ship-yard, so a tug, with four dynamos on her deck, was used as a central station. The sister ship of the "Olympic," the "Titanic," was launched last May, and will make her first voyage this winter.

## Automatic Irons

**W**HILE the regular electric iron, receiving current by means of a connecting cord, is the manufacturer's standby in most forms of garment manufacture, there are some particular situations in which another form is required. An instance of this is the "busheling room," as it is called, of a large tailoring establishment, where repairs and alterations are made.

Here the restriction of the iron to the area within reach of its cord has proved inconvenient, so to meet the demands, another method of heating the irons electrically has been devised, known as the tailor's automatic iron.

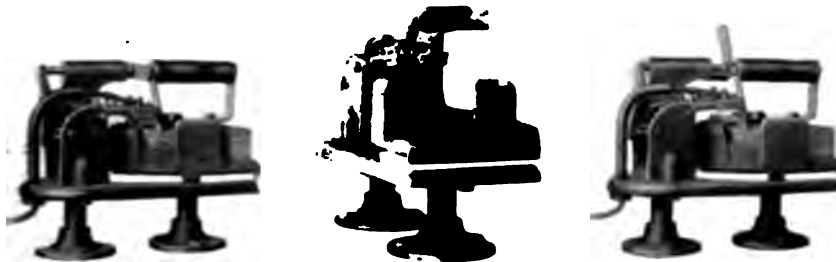
This iron is entirely free from any cord, and the connection is made by placing it upon the stand. This automatically connects the iron to the circuit, and consequently disconnects when the iron is removed. As in "busheling work" the iron is kept in use only a very small proportion of the time, it is easy to feed enough current while the iron is on the stand to keep it hot.



Automatic Tailor's Iron, Made by the Westinghouse Company

If, however, the iron becomes too hot, it can while on the stand be disconnected by throwing a lever near the handle into a vertical position, and again re-connected by shoving the lever again to horizontal.

In one large tailoring establishment where more than a hundred of these irons have been in use for over two years, the total cost for repairs has not exceeded five dollars. This company finds them cheaper to operate than any other type and that each man can do more work in a day.



When the Iron is Thrust into the Pocket Provided for it, the Nut on the Front End of the Handle Moves a Plunger. By a System of Levers This Forces two Copper-tipped Contactors into Connection with Two Copper Blocks Upon the Iron. In the Center the Stand, and to the Right the Iron, Disconnected while on the Stand by Throwing the Lever

548877



# The Modern Print Shop

**T**HE day was when the owner of the print shop worked his presses by hand. With verity may it be said of him that he earned his bread by the sweat of his brow, for to swing the handle of the old-time press required the muscular development of a blacksmith. But that time has gone never to return and since then other methods have come into use only to be discarded and replaced by something newer and better, keeping pace with the ceaseless turning of the wheel of progress.

The printing industry has developed to such an extent within the last score of years that to-day it ranks among the very foremost industrial activities of man. The printed matter turned out by all the presses in the world in a year would make a pile higher than any snow-

capped peak of the Alps. With this tremendous output it would seem that the height of perfection and efficiency had been reached. In printing establishments where motor drive is now in use it appears that not only this has been attained, but economy and cleanliness as well.

Leaders in the printing industry, not only in New York but throughout the country, discerning the advantages to be obtained by the use of the motor drive, adopted it at once, and their approval has been unanimous. New York City has many model print shops which are run by electricity. Frequently the owners have relegated to the scrap heap thousands of dollars' worth of machinery to install the electric motor, being convinced that they will be more than repaid in the end.

Last September the Urner-Barry Company, of 173-175 Chambers Street, which has for fifty-three years published "The Producers' Price-Current," remodeled its entire plant, casting aside an engine and complete equipment of overhead belting and shafting, and installing fifteen electric motors.

The task was undertaken very thoroughly and



A Cottrell Cylinder Press in the Urner-Barry Company's Establishment



Eight Job Presses are Run by Small Individual Motors

without interfering with or suspending business. The network of shafting and belting which had served excellently the purposes of collecting great quantities of dirt, taking up valuable space and getting continually in the way, was torn out and sold for junk. A complete rearrangement was made on all four floors, allowing space for more presses and more room for the workmen. Metal ceilings were put up, the coating of grime on the walls due to the machinery being removed, and several coats of white paint administered to every thing but the floor and the presses. New wiring was done throughout, all wires being placed in conduit piping to provide absolute security against fire.

Instead of following the old method of grouping lights,

thereby making it difficult for men to work in various parts of a room without being in shadow, plenty of single lights were installed, Mazda lamps being used throughout. The lighting is controlled from a twelve-circuit panel-

board on the first floor. Four circuits were carried to the composing room and, instead of the clusters of lights on the ceiling previously used, two lights were dropped to a "stone," one over each frame. The management reports that since the installing of the Mazda lamps and the redistribution of the units that they have not only better lighting, but have effected a considerable saving.



One of the Linotypes in the Urner-Barry Shop

## The Edison Monthly

Before the change last September the plant was run by steam-power, the steam being piped a considerable distance, at a cost of nearly a hundred dollars a month. At best the service was uncertain and shutdowns incurring loss of money were frequent, while constant repairs were necessary. The maze of shafting and belting necessary with steam-power not only gathered dirt and filled up space, but absorbed a large percentage of power in resistance. When steam was used for power only three grades of speed were possible; with the motors, however, no less than seven can be obtained.

The power for the entire installation is controlled from an eight-circuit panel-board on the third floor, while each motor has its own control board as well. A great saving of space was accomplished by placing the motors in the frames of, or under, or above the presses. Every press, great or small, has its own motor which is governed by the operator, resulting in perfect control and greater economy. On the second floor are two Cottrell cylinder presses, one operated by a two-horse-power motor and the other by a three-horse-power motor, both of which are carefully stored away in the frames of the presses, so that one would never know that they existed.

On the third floor are eight job presses, each having its own motor. These are set on pedestals about a foot high, away from the oil and dust, under and to the rear of the machines. In this department are three one-third-horse-power, one one-half-horse-power, three three-quarter-horse-power, and one one-horse-power

motors. On this floor are also two linotypes, one of which is operated by a one-quarter-horse-power motor. A three-horse-power motor, suspended to the ceiling to save space, runs a 46 x 72 automatic cutter. The elevator in the building is run by a three-and-one-half-horse-power motor. This elevator proved itself capable of carrying a two-ton linotype to the third floor.

As a result of the rearrangement which was made possible by the introduction of the motor drive enough space was saved so that in the near future one of the largest cylinder presses made, a Miehle press, with a bed 44 x 60, will be installed. This will be run by a five-horse-power motor. At the same time a new automatic rotary press will also be installed and will be operated by a two-horse-power motor.

The fourth floor contains the Kidder press which prints the "Producers' Price-Current," the official organ of the New York commission merchant trade. This little newspaper is published daily and the press is operated by a three-and-one-half-horse-power motor. When the press is idle the same motor runs a matrix dryer, a planer, and a machinists' lathe. The six people on the editorial staff of the "Producers' Price-Current" have their office room on the first floor.

---

"If some people got their rights, they would complain of being deprived of their wrongs."

---

"Some people will only thaw out at the Social Register."



**The Singer Building Towering Over Lower New York**

*Frank A. Benson*



## WIRING AND INSTALLATION CONTRACTORS

### West of Broadway and Fifth Avenue

Amsterdam Ave 452—C A Christesen  
 Amsterdam Ave 648—H Blumstetter  
 Broadway 335—Park Sullinger  
 Broadway 379—J S Bihin  
 Broadway 1170—The Chas L Eidlitz Co  
 Broadway 1269—S W Electric Co  
 Broadway 2270—A Ostrom Rowe  
 Broadway 2382—H S Beidleman  
 Broadway 2742—H Reinwald Jr  
 Church St 50—L K Comstock & Co  
 Columbus Ave 220—T F Carr  
 Columbus Ave 549—Hoffman & Elias  
 Columbus Ave 649—E Craske  
 Cortlandt St 26—Cleveland & Ryan  
 Cortlandt St 39—Hackall & Baldwin  
 Cortlandt St 39—Electric Cons & Supply Co  
 Cortlandt St 84—Bleye Elec Co  
 Duane St 172—Jas F Hughes Co  
 Eighth Ave 2719—Franklin Elec Co  
 Fifth Ave 65—L A Whitney Elec Co  
 Fifth Ave 75—H M Walters  
 Fifth Ave 503—Flucker & Keedwell  
 Greenwich St 183—Thomas & Johnson  
 Greenwich St 207—F A Frey  
 Greenwich St 255—F C Ross  
 Hudson St 660—Edw S Eaton  
 Sixth Ave 110—J V Johnson  
 Sixth Ave 419—C A Pinkham  
 Sixth Ave 617—Zenker & Siems  
 Sixth Ave 780—C C Bohn Electric Co  
 Sixth Ave 943—John M Flint  
 Seventh Ave 192—Emil Christensen Inc  
 Seventh Ave 727—Conduit Wiring Co  
 Seventh Ave 2200—Nathan Zolinsky  
 Thames St 27—Watson Flagg Eng Co  
 Thames St 27—McLeod Ward & Co  
 Varick St 132—Eugene P Etzel  
 Warren St 73—J P Hall  
 Warren St 96—Wm F Duffy  
 West St 116—Knickerbocker Electric Co  
 West St 463—Western Elec Co  
 West 14th St 130—The Electrical Contracting Co  
 West 17th St 156—Harry A Hanft  
 West 21st St 35—W J McClure & Co  
 West 26th St 54—Louis Freund  
 West 28th St 11—Thos L Dillon  
 West 30th St 110—Tucker Elec Con Co  
 West 31st St 109—Jandous Elec Equip Co  
 West 33d St 25—Harry Alexander  
 West 33d St 209—E J Elec Installation Co  
 West 34th St 45—Peet & Powers  
 West 38th St 72—A J Buschman Co  
 West 42d St 25—Russell Haynes Electrical Co  
 West 42d St 29-33—Germond & Turner  
 West 42d St 112—Oberg Blumberg & Bleyer  
 West 45th St 100—F A Bohling  
 West 49th St 422—Frank Pisch  
 West 72d St 176—T J Kaufman & Co  
 West 111th St 147—Mariposa Electric Co  
 West 116th St 227—Lewis S Davis  
 West 134th St 314—M Kohosoff  
 Wooster St 12—Durbrow & Hearne Mfg Co

### East of Broadway and Fifth Avenue

Beekman St 74—Jordan Bros Inc  
 Broome St 105—B H Weinberg  
 Canal St 237—N. Klein & Co  
 Cedar St 16—Wm Truswell & Son  
 Dover St 8—E W Hazazer  
 East 7th St 138—H A Schreiber

East 9th St 65—George D Beinert  
 East 9th St 51—B W Sandbach & Co  
 East 22d St 27—Hunt & Morgan  
 East 22d St 113—J Livingston & Co Inc  
 East 23d St 10—Forsth Elec Co  
 East 23d St 42—Kimball Elec Construc Co  
 East 23d St 145—Bateman & Miller  
 East 25th St 122—Isador Fajans  
 East 28th St 114—Burkart Elec Co  
 East 30th St 13—Geo H Shuman  
 East 33rd St 219—Joseph Waintrob  
 East 37th St 207—Reis & O'Donovan  
 East 42d St 39—Edwards Elec Con Co  
 East 42d St 45—Cowden & DeYoung Inc  
 East 55th St 147—Morris Levi & Co  
 East 57th St 426—Behlert Elec Co  
 East 59th St 57—Stanley & Ruth  
 East 72d St 167—E J Dustman  
 East 77th St 426—Edw Zenker  
 East 88th St 176—M Strompf  
 East 125th St 13—L L Strauss  
 East 125th St 31—Leo S Stern  
 East 125th St 77—Peter Jansen  
 Fourth Ave 373—Hatzel & Buehler  
 Frankfort St 26-30—J F Bidstrup & Co  
 Fulton St 44—E Klein & Bro  
 Fulton St 96-98—Fulton Electric Co  
 Fulton St 227—Edward B Stott & Co  
 Fulton St 237—General Electric Inspection Co  
 Gold St 29—Mfrs & Inventors Elec Co  
 Great Jones St 38—Geo Weber & Bro  
 John St 52—Alfred Whiteley  
 Lexington Ave 1249—J E Woelfe  
 Liberty St 123—G Curt Kastner  
 Liberty St 126—S Arthur Brown  
 Madison Ave 314—Nimis & Nimis  
 Madison Ave 959—Kendelhardt & Sons  
 Madison Ave 1122—F W Coffin  
 Park Ave 103—Stehlin-Miller-Henrich Co  
 Park Ave 1630—Guarantee Electric Co  
 Third Ave 221—Maurice Young  
 Third Ave 670—Silverman Bros  
 Third Ave 1021—E Kalkan  
 Walker St 84—M F Finkelstein  
 Wall St 2—Edwin C Gee  
 Wall St 99—Chas Davidson

### Bronx

Baker & Fox—313 E 141st St  
 Blackman & Guttman—226-28 East 144th St  
 Bogan Irving A—4192 Park Ave  
 Evans & Kaestner—893 Intervale Ave  
 Hinners F J Jr—585 East 135th St  
 Kips John—161st St and 3d Ave  
 Kirschhoff C Arthur—584 East 163d St  
 Landy Jacob—673 Elton Ave  
 Mangam H I & Co—333 East 162d St  
 Ross E L—356 East 138th St  
 Ryan Geo E—603 Tremont Ave  
 Schwarzler M & Son—460 E 167th St  
 Vielberth Jos F—1243 Taylor Ave  
 Woods Lewis H—2355 Jerome Ave

### Yonkers

Excelsior Gas & Elec Fixture Co—42 Warburton Ave  
 Imrie & Underhill—Bronxville N Y  
 Nugent A W Co Inc—83 Warburton Ave  
 Seaboard Elec Co—32 N Broadway  
 Westchester Elec Equip Co—34 N Broadway

# The Edison Monthly

September

1911

## C O N T E N T S

VOLUME IV

NUMBER 4

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# Editorial

## *The Edison Monthly*

Published by

## *The New York Edison Company*

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A steam boiler inspection and insurance company records no less than 159 explosions for the first three months of this year, with twenty-seven fly-wheel explosions for about the same period of time.

The number of killed and injured resulting from these accidents reaches the ghastly totals of ninety-four deaths and 137 persons hurt, in many instances seriously. A single catastrophe involving a death roll of such proportions would be classed with the "big" disasters by fire and flood, but since these returns come in day by day, from all sections of the country, the amount of destruction is not impressed upon the general public.

Figures estimating the money loss are not available, but the fact that one explosion in Georgetown, South Carolina, on March 4th, cost the plant some \$50,000, gives some indication of this item.



The lesson which the insurance firm draws from the figures is, of course, the necessity for their ser-

vices, while the unwillingness of smaller plants to bear this expense and the tendency to avoid necessary repairs and to employ cheap help is set forth strongly. The same facts argue equally well for central station service.

High-pressure steam is not a household article, to be let around loose without the proper provisions for its management.

Central station service for light and power eliminates this risk for its subscribers, while as far as the lighting company is concerned the large resources available enable its engineers to deal successfully with their boiler problem.



Two striking instances in connection with the electric flatiron have been called to our attention lately. In one garment factory the employees petitioned the owner to have electric irons installed, offering to pay for the cost of current themselves.

This arrangement was made, and the operators there estimated that, after deducting their weekly bill for current, each one has made from 10 to 30 per cent more on piece work than she could with the older form of iron.

In the other case, a manufacturer of shirt waists sent a rush order for flatirons to our Heating Department. They must be in by a certain date, he emphasized. When the installation had been completed it was learned that a short time before the employees had struck for electric

flations, and, in the negotiations that followed, had agreed to return if the apparatus were ready on the following Monday.

Both of these situations show clearly what the electric iron means to the workers in the various garment-making trades; to them it represents greater comfort and earning capacity. The manufacturer, on the other hand, profits equally, since without enlarging either his plant or his staff, he can increase his output.



The summer's hot spells, by their intensity, emphasize facts which should be considered to a lesser extent throughout the year; that is, that certain conditions of light, air and heat are important factors in producing the best sort of work, the conditions, of course, varying considerably for each trade. It is only within the last few years that the researches of scientists along this line have been adopted as a basis for commercial operations, but there seems little doubt that the combination of science with practical business experience will bring useful results.



There are many cases where an elaborate apparatus for air-conditioning is not necessary, where the simple precaution of not vitiating the atmosphere proves sufficient. Here, also, electricity finds the way, light which makes little heat and gives off no fumes; the electric flat-iron and heating pots which form no disagreeable vapors or gases, these are some of the devices at the

service of the manufacturer whose business does not call for an elaborate ventilating system.



New York has finally swung into line and has decreed the extinction of the fire-horse. From the standpoint of the thrilling, the picturesque, the "human interest" involved, in fact for every reason except utility, we regret the passing of the fire-horse, and heave a sigh for the small boy of the next generation who can never make friends with the sleek beasts at the nearest engine house.

The decree having gone forth, however, that for economy and efficiency, New York's Fire Department must be motor-driven, the question then arises of the type to be selected, and the Commissioner has appointed persons to study the question.



In discussing recent reliability tests, a firm manufacturing electric commercial vehicles exclusively, points out that long terms of service furnish the best evidence of economy and durability. A factory just outside of Boston, which has been using electric vehicles for the last six years, has just ordered another five-ton truck to be added to its collection, while another Boston concern reports that its one-ton wagon has been in operation in the streets of Boston every business day from the time of its delivery six years ago to the present moment, with the exception of two days only. This machine has not even been out of condition for repainting, but still wears today its original coat of color.



## An Old-World Festival

THE observance of the feast of Our Lady of Mount Carmel promises to assume in America the proportions which it has long exhibited in many other parts of the world and in Italy in particular. Annually on July sixteenth, devout Italians have for a number of years come by thousands from all parts of North America to worship at the shrine of Santa Maria del Monte Carmelo in New York's uptown Little Italy. It was estimated that more

than two hundred thousand this year attended, a large part of them being obliged to camp out in Jefferson Park, as but little room could be procured in the native quarter. The celebration, which in the evening is enlivened by fireworks and elaborate illuminations, continues from the day preceding the Festival proper through the night of the seventeenth.

To one who has never witnessed an Italian *festa* the spectacle is at



Night Views of the Lighting at the Festival of Our Lady of Mount Carmel, Held in the Uptown "Little Italy." July 15, 16 and 17. It is Estimated That More Than 200,000 Attended the Festival. When there was no More Room in the Homes in the Italian Quarter, Many Thousands Camped Out in Jefferson Park

once curious and beautiful. On the morning of the great day the multitude forms itself in procession for the Church, headed by the ecclesiastical dignitaries and preceded by children who strew flowers all along the way. The streets on the line of march are gay with Papal and American flags intertwined with the Italian National banner. Each victory from early in the day bears before him a great candle which he in his turn will place, before the altar. The Church itself is a mass of flowers and lights; and in the long and solemn ceremonies the Italian pays his homage to the great and well beloved Madonna.

Italy, from the Alps to Etna, is covered with the Virgin's sanctuaries. The solemnities which accompany her feast day in Rome, in Naples, in Sorrento, once witnessed cannot easily be forgotten. On these occasions the beautiful Church of the Carmelites on the Quirinal Hill in Rome is bathed with electric lights and filled with the Roman nobility, while eminent ecclesiastics take turns in officiating at the sacred functions. The statue of Our Lady of Mount Carmel is borne through streets crowded with worshipers, scattered flowers and burning incense marking the passing of the cortege. Mothers are to be seen holding out their little ones to the Madonna and women of the better classes lay jewelry and costly tokens at the feet of their protectress. All this has for centuries been repeated in other cities, where Our Lady's shrines have written eloquent pages in the history of the Fatherland.

The custom was inaugurated in this country twenty-seven years ago. At that time the immigrants from the Province of Salerno, an agricultural district in the central part of the Italian Peninsula, settled on the upper East Side of New York City. The congregation of Our Lady of Mount Carmel first came together in 1884. The Pallottinian Fathers, a missionary order particularly devoted to the cult of the Virgin, organized the parish the following summer, and succeeded, after years of effort, in erecting the present church.

The peculiar sanctity attaching to this shrine is thus explained. The title of Mount Carmel is the compendium of all the prerogatives which enrich the Virgin Mother. Of the thousands of Roman Catholic churches in America, this alone possesses a statue of Our Lady which, by virtue of the above title, has been crowned by Papal decree Queen of the faithful in America. This ceremony was held with great pomp on the sixteenth of July, 1903.

It is exceedingly difficult for the outsider to understand much regarding the spirit of these worshipers. He cannot, however, but be impressed with the perfect naturalness and sincerity evidenced on all sides throughout the observance.

The *festa* has since grown steadily in magnitude and importance. The procession this year started at three o'clock on the afternoon of Saturday, July fifteenth, and lasted until nine o'clock that evening. At eight o'clock on Monday morning the march was resumed and continued all day through pouring rain until ten o'clock at night, when hundreds,



General View of the Lighting Along First Avenue and 116th Street, During the Three Days of the Festival July 15, 16 and 17. In all, Some 10,000 Lamps Were Burning

exhausted and with bleeding feet, fell by the way. On this occasion over twenty-five thousand dollars was contributed to the Church and many precious gems placed upon the altar.

A favorite way of showing devotion is by carrying a candle in the procession. These weigh anywhere from two or three pounds to a hundred pounds and are all fittingly



Where 116th Street Crosses First Avenue the American and Italian Flags Were Formed in Electric Light

decorated in colors. It was estimated that \$12,000 worth of candles were laid on the altar of Our Lady of Mount Carmel this year.

Out of this custom of bringing candles has sprung another practice. During the year, should a person be afflicted in some part of the body, he makes a prayer to Our Lady of Mount Carmel and promises that, if she will restore him to health, the

116th Street and continued on 115th and 114th Streets from First Avenue to Pleasant Avenue. Jefferson Park was completely encircled by arches of light, while in the park itself there was erected a colossal picture of Our Lady of Mount Carmel, which was illuminated by hundreds of small electric lamps.

There were some three thousand lights used alone for the decoration



Lighting at the Church of Our Lady of Mount Carmel, in East 115th Street. This is Now the Largest Italian Parish in New York

person will carry a wax image of the afflicted part in the procession of next Mount Carmel day. Thus there is a vast collection of various parts of the human anatomy placed every year on the altar of the Church.

For the last four years the neighborhood for many blocks around has been lighted by The New York Edison Company. The illumination for the recent event was carried up First Avenue from 106th Street to

of private property in the vicinity. The front of the Church was ablaze with festoons of lights, and at the juncture of First Avenue and 116th Street a large design, consisting of the American and Italian flags crossed and surmounted by the letter "M," was formed with electric bulbs. Much credit is due Mr Arnold Migliaccio, who planned and executed the entire decorative lighting for the festival.





The First National Bank, as Seen From Trinity Churchyard

## The First National Bank

**A**N historic old banking building that has undergone many changes in recent years is that of the First National Bank of the City of New York, at Broadway and Wall Street. Erected thirty years ago, it was for a long time the home of the First National Bank and the Bank of the Republic, and was known as the United Bank Building. About ten years ago the Bank of the Republic was absorbed by the First National, but for a long time the building retained its old name.

Alterations and additions have just been completed which have greatly increased the building's ac-

commodations. Three stories have been added and hydraulic elevators which formerly carried the lawyers and brokers who occupy the building have been replaced by electrics.

Two elevators are for general use, while a third is exclusively for the bank employees. In addition to the many structural changes, a new name has been adopted and the stonecutters have just finished carving the letters of the First National Bank over windows of the banking floor. The general appearance of the working side of the bank has been greatly improved by the installation of a system of concealed lighting.



Office of The First National Bank, Showing the System of Concealed Lighting





Broadway Building of Young Brothers, Hatters. A Retail Business of a Million Dollars a Year is Carried on in the Chain of Nine New York Stores. The Building Here Shown Has Recently Abandoned its Private Plant in Favor of Edison Service

## The Young Building

WITH a retail business of more than a million dollars a year, the firm of Young Brothers, hatters, is without doubt the largest in this city. This activity is carried on through nine stores in New York and Brooklyn. In addition to this vast retail business, there are agencies in almost every city in the country, which are supplied through the firm's wholesale department.

All the hats which are handled in these stores are made right in New York City, the factory being at West Broadway and Prince Street. The general offices of the company are at 605 Broadway in the Young Building. Here, too, is located the largest store in the city chain, and the straw and panama hat department of the factory.

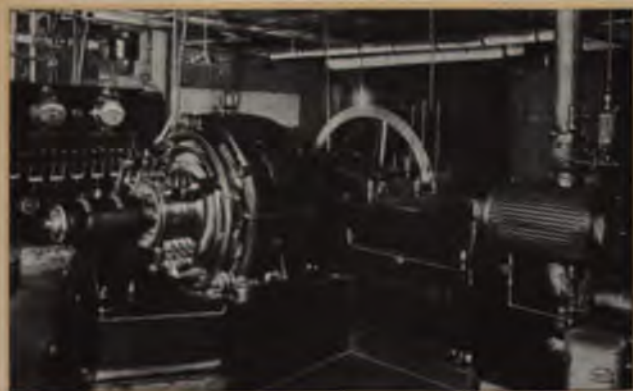
The Young Building was erected in 1876 and for many years was known as the Austin Building. In 1894 the hat company moved in and five years later purchased the building and changed its name. With the purchase of the building, the new owners installed a generating plant to supply electric light and power for the lights

and elevators. For twelve years the private plant met the demands made upon it, but recently it was decided to close it down and take the current from the mains of The New York Edison Company.

The change was made early in August, and for the past month the current from Waterside has illuminated this well-known Broadway building. Seven hundred lights, two elevators and a house pump are supplied. Besides the store and offices of the hat company there are a number of millinery supply houses in the building.

### A Parisian Handicraft in New York

FRANCE, among other things, is famous for the beautiful and delicate fabrics woven on her looms and for the skill and clever-



A Portion of the Closed Down Plant, Which Had a Capacity of Fifty Kilowatts





The Salesroom of Young Brothers' Building at 605 Broadway

a toll for their vanity and so it has placed a very high duty on everything bearing the brand of Paris. This has led to imitating and copying Parisian designs and patterns. And in supplying the ever-increasing demand for this class of goods, imitators have become experts

ness of her native designers who create the gowns that are worn first in Paris. Paris sets the pace in fashions for all the world. "It came from Paris." It was so when our grandmothers and great-grandmothers were belles and it is safe to predict that in the years to come it will still be the same.

The cult known as "Society" will ever and anon turn its worshipful countenance toward Paris, the Mecca of fashions. The Government has decreed that, if American women really will have things Parisian to wear, they must pay

in their kind of work. Sometimes it is almost impossible to distinguish the American made from the genuine.

There are some sorts of fabrics which, if imported before the design is placed on them, are admitted with a much lower duty. So they are



Painting on Chiffon—as done in the "Decorus" Workrooms with Stencil and Air Brushes. The Air-Compressor Regulating These Brushes is Motor Driven

brought into the country plain and the decoration is done here. One of these is chiffon. There is a duty of sixty per cent on printed chiffon, while the duty on plain chiffon is only a very small fraction of that. Realizing the possibilities in this situation, an establishment was started not so long ago under the name of the Decorus Manufacturing Company, at 34 West Twenty-first Street, to paint the designs on chiffon in

preference is made in Berlin and known as the Flora, its advantage over other makes being its fineness of spray. The air brushes are connected by means of long flexible rubber tubes with a compressed-air tank where a uniform pressure of 200 pounds is maintained, a two-horse-power motor running the air compressor.

In painting a design the fabric is first stretched out on a table and



**Painting on Chiffon, a French Craft Lately Sprung Up in America. Because of the High Duty on this Sort of Goods, a Manufacturer Has Found it Profitable to Open this "Decorus" Establishment on West Twenty-first Street**

this country by exactly the same process employed in the factories of Lyons, France.

Painting on so delicate a fabric as chiffon, is, as can readily be imagined, a difficult operation. It is done by means of air brushes which blow the paint on goods through stencils. Any tint or shade of a color may be secured by manipulating the air brush. At the establishment of the Decorus Company twenty-five air brushes are used. The type given

fastened down by the edges to prevent its pulling. A stencil cut for that portion of the design which is to be all the same color, or shades or tints of the same color, is then laid over the goods and the operator begins the painting process with the air brush. Later this first stencil is removed and another stencil is placed on cut for the part of the design requiring another color, half a dozen or more stencils sometimes being used in painting on a single design.

When the design is finished the result is wonderful. In holding up a piece of chiffon on which a rose has been painted it is almost as if the flower itself appeared through a mist. The flimsy screen of chiffon is a perfect medium on which to recreate, as it were, the beautiful things of nature. It is a little like a very fine painting on a Dresden vase, only more exquisite and delicate, if that be possible.

This novel output is sold exclusively to large manufacturers of costumes. It is often the case that designs are ordered for one house exclusively. The material in many of the handsome creations of the modiste's art in the Fifth Avenue windows was painted in this establishment.

### A Summer Peak-Load

**A** DRENCHING downpour of rain, accompanied by blinding flashes of lightning, crashing peals of thunder, and sudden darkness, swept over the city during the afternoon of August 15th. The storm area extended over the southern part of New York State, New Jersey and far out to sea. The storm, known among mariners as a "black squall," came out of the southwest, the wind reaching a velocity of fifty-five miles an hour.

At about a few minutes before three o'clock inky blackness settled over the city, and in the downtown section, where the tall buildings added to the shadows, it was impossible to see further than a very few feet.

Under conditions such as these the generating station of any town

is put to the severest test imaginable. In New York the consumption of current more than doubled between noon and three o'clock. The normal daily maximum demand fairly constant during the summer months is about 60,000 kilowatts, at noon there is a drop to about 48,000. The first storm struck the city a little before two P M and the consumption of current went up to 73,000 kilowatts. Then the weather brightened again and the demand dropped to normal. At a quarter of three the second storm descended on the city and in less than a half hour the demand increased to 105,000 kilowatts. The load was maintained for about fifteen minutes; was met without the least drop in the supply voltage and without calling upon the large reserve capacity in the storage batteries.

During the clear hours of the morning when the quantity of current consumed was at its normal figure, sixty boilers were running to operate eight generating units. Shortly before noon the first warning of the coming storm was received from the weather observer stationed on the roof of the generating station. Soon after this reports were received from the outlying districts. Twenty-six more boilers were started and steam was sent to nine additional generators. When the storm finally came eighty-six boilers and seventeen generators were ready to send out the current that would be needed to lighten the unnatural darkness.

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The more worthless a man becomes, the more grievances he has.



Lower New York, as Seen from the Jersey Shore

F. J. Smith



## A New Electric Vehicle Fleet

THE largest fleet of electric commercial cars in operation in any city in the world was built here in New York City. Two hundred cars are now making their daily rounds, averaging runs of thirty miles or more each. Built by the Ward Motor Vehicle Company at the factory at East 143rd Street, the Bronx, for the Ward Bread Company, the yellow, red and orange colored wagons may be seen daily on any street of the city. Prior to the opening of the bakery in the Bronx, the wagons had to make their trips all the way to Bay Ridge, Brooklyn, for the bread, journey to the northern part of the city to make deliveries, and then return to New York.

The Ward Motor Vehicle Company is the successor to Pittsburgh Motor

Vehicle Company, manufacturers of the "Pittsburgh Car." The change in name followed the removal of the company to New York, from Pittsburgh. One of the recent feats of the Ward Company was the conversion of an old gasoline truck into an electric. The operation required a thorough rebuilding of the truck, but so successfully was it done, that the owners have recently sent their other gasoline car to have its motive power changed.

### London's Portable Fire-Escapes

PORTABLE fire-escapes mounted on two-wheel trucks and carried on fast electric vehicles, are one of the most distinctive features of the rescue equipment of the London Fire Brigade.

The most important part is a seventy-five foot extension ladder, to which is attached a long canvas chute. Through this chute, persons who have been trapped on the upper floors of a building drop to the street. The lower end of the canvas is looped up in order to arrest the fall.

For many years there were maintained in various parts of London,



Two Hundred of these Cars, at Work in New York and Brooklyn, Constitute the Largest Commercial Electric Vehicle Fleet on Record

**Isles of Safety.** A corps of firemen at each had sufficient apparatus to fight any small blaze, and was provided with the portable escape. The fire-escape is adapted to use in crowded sections of the city, where there are innumerable alleys, so small that the regular apparatus could not get near a burning building.

London is the only city maintaining such fire equipment.

With the improvements in electric-driven vehicles changes have come in the London fire-fighting system. The Isles of Safety are gradually giving way to the electric apparatus and the fire-escape is now mounted on an electric. As it is necessary for the vehicles to cover great territory, the range of usefulness of the escape is extended.

Three such electric vehicles were recently delivered by Cedes Electric Traction Company, Limited. The order was secured from the London County Council only after the vehicle had been put to the severest kind of a test. The fully loaded machine attained a speed of twenty-six miles an hour on the level, climbed the Pentonville Hill (one in twenty-four) at a speed of sixteen miles an hour, and made the run of twenty-five miles out from Pentonville and back in one hour and a half on one charge. One of the vehicles has covered eight hundred miles since going in service,



One of the Electrics Used by the Cushman Bread Company

and several times has done thirty-five or forty miles on one charge.

The vehicle consists of a chassis, with battery, motors and control equipment, a light body with the gear for holding the fire escape, and a small pumping-set, which is used previous to the arrival of the regular fire-engines.

The total weight, including the escape and a crew of five men, is five tons five hundredweight. The battery is of the Tudor Company's make, and comprises eighty-four cells of a total weight of twenty-six hundredweight, giving two hundred ampere hours at the four-hour rate. Two hub motors of the Mercedes pattern are provided, one in each of the front wheels. These motors are rated at twenty horse-power each, and are regulated by an ordinary traction controller on the usual series parallel system.

Electric braking can be effected by means of the motors on the front wheels, while the rear wheels are provided with band brakes.



Examples of Fine Window Lighting Seen Along Fifth Avenue





Showing Beautiful Display Effects Obtained by Skillful Window Lighting



# The Aston Print Shop

A Private Plant Experience

**S**T ASTON AND SON, one of the old downtown printing houses, recently left their former quarters at 22 Thames Street for more favorable ones at 114 Worth Street. The firm is now located in two very light and spacious lofts, on one floor of which alone there are twenty large windows. In fact, the

sure that you are coming right out on the dot and not have your plans all thrown out by a breakdown in your service. Power is a big factor in the printing business and it is great to feel that you have got the real thing back of you,—something you can really count on all the time. Getting out a job on time means the

confidence of your customers. It is mighty unpleasant to have to explain to a customer that his work has been delayed owing to an unavoidable breakdown in the power plant."

While located at the Thames Street address Mr Aston took his power from a private plant in the building.



Job Pressroom of the Aston Press, Showing Cleanliness Maintained Through Motor-Drive

conditions are as near ideal as it is possible to find for the printing business. This change has another significance than the mere betterment of location. It has proven to be a practical demonstration of the superiority of Edison Service over that supplied by a private plant.

"You can't get any better service than that supplied by The New York Edison Company," said Mr S T Aston, head of the firm. "You can plan work for weeks ahead and feel

He was obliged to discontinue work at 6.30 P M every day, or else pay a bonus of a dollar an hour simply for the privilege of using current after that, the dollar an hour being in addition to the price charged for current actually consumed. So if he had rush work on hand which required night work, up went his expenses to the tune of a dollar for every hour.

When he had received his first month's bill for power after being

located in his new place and using Edison Service, he was asked if he was satisfied at having made the change.

"I am convinced," said he, "that to have done the same amount of work under the old conditions, as I did the past month in my new place and on Edison Service, would have cost me more money. I am more than pleased."

Mr. Aston has a model printing establishment. Light and room, both of which are so essential in the printing business, are plentiful. Everything is clean as the proverbial "whistle" and the installation is laid out in the most approved fashion. There are four cylinder presses operated by individual motors, one being a one-and-one-half-horse-

power and the other three three-horse-power motors; and two cutters, one of which is run by a one-horse-power and the other by a two-horse-power motor. In the press-room are ten job presses, all operated by one-quarter-horse-power motors. There is an excellent system for keeping the electro plates; although more than a thousand are on hand all the time yet it is perfectly easy to get any particular plate out very quickly.

## Prize for an Electric Safety Lamp

A MINE owner of Great Britain has given to the Secretary of State for the Home Department \$5,000, to be offered as a prize for the best safety electric lamp for miners. Two distinguished electrical and mining experts have been appointed to act as judges. The competition is open to all nationalities and the judges may award the whole



Cylinder Presses in the New Aston Quarters are Advantageously Operated by Individual Motor Drive

of the prize for the lamp that they consider the best, or may divide the prize among several competitors, or if no lamp of sufficient merit is offered may refuse to make the award.

The lamps will be received at the Home Office Testing Station at Roth-erham not later than December 31st next. The chief requirements for the lamps submitted are as follows: first, they must be of some mechanical construction to withstand rough usage; they should be simple and

easily kept in good order. The lamps must be constructed so as to prevent the ignition of inflammable gas from either within or without. The lamp battery should be such that liquid it may contain cannot be spilt when the lamp is in use, and means must be provided for dealing with any gas that may be generated by the battery. The lamp should be so locked that it cannot be opened without detection, and must be capable of giving not less than two candle-power of light continuously for at least ten hours. The light should be well distributed, and a movable reflector to concentrate or to shield it may be provided, if the contestant desires.



The Rogers Store in the Bronx Has a Complete Electric Equipment. On the Main Floor Where the Ceiling is Exceptionally High, Arc Lights Prove Satisfactory.

### A Model Bronx Store

PEOPLE who argue that electric store equipment is profitable only on a very large scale would do well to visit the department store of Francis Rogers and Sons, 143rd Street and Third Avenue. Few of the great downtown establishments in New York have as perfect an electrical equipment as has this enterprising Bronx firm.

In addition to a well-arranged lighting system throughout the building, there is a vacuum-cleaning plant with convenient outlets on all floors, while motor drive is used for every conceivable purpose for which power could be used in a department store.



This Store is Vacuum Cleaned Throughout, the Merchandise Being Kept Free from Dust With a Vacuum Cleaning Brush



The basement, wherein is located the grocery, house-furnishing, and hardware departments, is lighted by forty-four one hundred-watt and forty twenty-five-watt tungsten lamps. Good distribution of light is secured by the use of reflectors. The basement was formerly lighted by arcs; this proved unsatisfactory as the ceiling is too low.

On the main floor are to be found general merchandise such as silk, linen and cotton dress goods, jewelry and men's furnishings. Here the ceiling is rather high and good results are obtained by the use of electric arcs. The lighting on the second floor is similar to this where "ready-to-wear goods" are sold and on the third floor a department for shoes, toys and boys' clothing is located.

In the basement is a large vacuum cleaner with pipes running to all parts of the building. Not only are the floor coverings and draperies kept clean by electricity, but dust is also removed from merchandise by a vacuum cleaning brush. A five-horse-power motor operates the cleaner. Five electric flatirons are used in the tailoring department, while a tailoring and upholstering machine is operated by a three-and-one-eighth horse-power motor.

A twelve-horse-power motor runs the elevators and a five-horse-power motor operates the machinery in the repair shop where all kinds of repairing for the establishment is done. A coffee grinder in the basement is run by a compact little motor, while in the stables a five-horse-power motor runs the clipping and grooming machines.

### A New Tungsten Fixture

**A**N ingenious device, making it possible to tap from a lighting fixture current to operate a fan or some table accessory has been on the market all summer and has found great favor with users of electricity for home purposes.



A Tungsten Fixture Lately Devised,  
Which Permits the Running of Both  
Fan and Light from the Same Socket

It is called a "current tap," and consists of a specially designed plug in which is constructed a socket for the tap. In the side of the plug is the socket in which the current tap is set. Not only may a fan tap in on the current, but electric toasters, heaters, chafing dishes, or in fact any of the portable devices which add to home comfort may be connected.



## Electric Flat-Iron Tales

**M**ORE than 250,000 electric flatirons were sold last year in the United States and Canada. This almost phenomenal growth in the use of electric flatirons is beyond a doubt the best testimonial in their favor that could possibly be produced.



Electric Flatirons in a Cravat-Making Establishment. Their Cleanliness is Greatly Appreciated in This Trade

The manufacturer who uses electric irons finds out a great many things. In the first place there is no vitiated air in his loft, no escaping gases, no smoke. He finds that in the hot weather when working is the most difficult, especially when heated tools are used, that his loft is cooler and naturally the strength of his employees is conserved.

He also discovers the electric flatirons make quicker work possible,

which means an increased output. It is demonstrable that the same force will turn out more work in the same amount of time using electric irons than using the same number of irons of any other kind. This is true because electric irons heat evenly and can be regulated to maintain

the same temperature for an indefinite period. In ironing white goods nothing compares with the electric iron. There is no soot or dirt of any kind to leave black smudges on the material.

Following are some interesting histories of flat-iron installations secured by the Heating Bureau of The New York Edi-

son Company. About eighteen months ago the firm of Bohn and Mosher, manufacturers of art embroidery, were about to move to their new building at 23 Sullivan Street. It was learned that the type of irons then in use by the firm were not giving satisfaction, so a few electric irons were sent them on trial. When the concern moved into its new building six electric irons were installed as an experiment.

At first the Heating Bureau was told that the irons were costing too much to operate. Various tests were then made and the superior quality of work done by the electric irons pointed out to Mr Bohn. As a result he not only decided to keep the irons already in use, but installed six more. The irons have been running for more than a year now and the proprietors are perfectly satisfied with the results obtained.

John David, the tailor and men's furnisher, Broadway and Thirty-third Street, was a long time in finding out the advantages of electric irons. As soon as he became convinced that electric irons more than make up for the cost of current by increased output, he installed ten 770-watt flatirons, each

weighing seventeen pounds. They are put to the very hardest kind of work for an average of twelve hours every day.

In order to prove to E M Blatt, a manufacturer of ladies' dresses, at 16 East Thirty-second Street, that electric flatirons are all that they are claimed to be, an iron was installed at his place on trial with a separate meter, so that he could find out just what his current would cost him.

This test continued for eight months, but at the end of that time Mr Blatt gave a rush order. The electricians had to work night and day to finish the installation, which consisted of twelve fifteen-pound irons.

Last March the firm moved from the old factory, at Fifth Avenue and Twentieth Street, to their present address. When the wiring was done in the new building, provision was made for twenty-four irons instead



Electric Irons in a Tailoring Shop. Here it was Found that Increased Output More Than Paid for Cost of Current

of twelve. The foreman of the factory declares that they are doing the cleanest work in the city, and for this he gives credit to the electric flatiron.

Another interesting test was made in the factory of Klinger and Bach, 737 Broadway, manufacturers of boys' wash suits. A table with six old-style irons was placed beside a table with six electric irons. The operators of the electric irons turned out



twenty-five per cent more work than the other operators. Before the end of this season Klinger and Bach will be using fifty electric flatirons.

After a six weeks' trial of the electric flatiron, J Heiman and Company, manufacturers of cravats, 106 Seventh Avenue, installed eight irons and had the establishment wired for double that number, in order to be prepared for future needs.

It took three years for the electric iron completely to supersede the older type used by Hirsh and Cohn, manufacturers of ladies' waists and dresses, in their establishment at 37 West Twenty-sixth Street. They tried their first electric iron three years ago. At the first increase the firm added six irons, a little later six more, and now the installation is complete. They are using twenty-six irons and have had such satisfaction with electricity as a heating

agent they are using it in connection with a velvet steamer.

The velvet steamer is a great aid during the fall and winter, when the firm handles its heavy work. The heating attachment with which it was originally fitted has been removed, and an electric heater made especially to fit the old steamer has been substituted.

### An Electric Stamping Machine

NO more the swinging mallet blow, or the manipulation of a cumbersome lever will be required by our bankers to cancel paid checks. And the modern device that is taking the place of the old will also find a great call for its services, when million dollar bond issues are ready to be sealed. In former days the entire time of a strong man

was required to work the hand seals used for impressing the documents. It is a matter of record that a colored man who sealed 2,000 bonds, worked four days, and that a boy who worked on a \$12,000,000 bond issue was completely prostrated when the task was finished.

The Electric Seal and Stamp machine, recently put on the market, is designed for use by all kinds of banking houses and corporation offices, in fact wherever a legal seal is necessary.



A Ladies' Dress-Making Firm, Where, with Twelve Electric Flatirons, the Superintendent Boasts They Do "the Cleanest Work in the City"



**A Form Where Twenty-six Irons are Used Recently Added the Electric Velvet Steamer Shown Here**

The machine is operated on the magnetic principle, the magnets being mounted in the base while a movable arm is attached above. A spring contact is between the base and the arm. The paper is slipped through a guide slot, the contact is made and the movable arm

descends with the force of a hundred pounds. Impressions can be made just as rapidly as a man can pass a paper through the dies.

For cancelling checks a cutting die is used. It is possible to cut through six thicknesses of paper at one blow. The machine is seven inches high, has a base five by eight inches, weighs about twenty pounds, and is wired to 110-120 volts direct or alternating current. Attachment is made to an electric light socket.

An electric laundry is used by the nuns of the Ursuline Convent in Sligo, Ireland. Truly the old order changes. As if the situation were not in itself sufficiently startling, it gains in significance from the added information that the nuns employ this apparatus in their school in domestic science under the higher education program of the Department of Agriculture and Technical Instruction for Ireland.



**Electric Flatirons for Art Embroidery**



## A Sign Projector

THE sidewalk, usually thought fit for nothing but to be trod upon, is now being utilized as a medium for telling the pedestrian what the shop-keeper has for sale; and in the race for honors it bids fair to soon class with the board fence as an advertising medium.

By means of a lantern in the window it is possible to throw words or pictures of any kind on the street in front, and in a position where they are bound to attract the attention of those passing by.

The lantern is known as the Electric Sign Projector and consists of



This Lantern is Placed in the Window



The Name of the Store is Thrown On the Sidewalk

nothing more than a tube fourteen inches long and two and five-eighths inches in diameter mounted on a pedestal. In one end of the tube is a 100-candle-power lamp which throws its light through three lenses. The advertisement, which is written on a glass slide, or cut in a stencil, is projected to the street.

Although the stencil is round, the advertisement as it appears on the walk is elliptical, due to the angle at which the projector is placed. The projector is set on a bracket, or suspended from the ceiling, and can be adjusted at any angle. The lenses are focused the same as an opera glass.

## Electric Annealing Furnace in Die Making

**A** HUNDRED pound trip hammer dropping from a distance of six feet strikes with the force of hundreds of pounds on a small piece of hardened steel, and, as if by magic, a little disc of gold or silver or bronze is transformed from a plain piece of bright metal to an elaborately designed medallion.

The hammer is lifted, again it falls and another bit of metal becomes the prize for which some one will strive. Again the crashing blow is repeated, and so on until a dozen, or, if need be, hundreds of impressions have been made. The number of times the die, for that is what the little bit of steel is, will stand the weight of the trip hammer, is only limited by the care and skill its makers displayed when they produced it.

These dies are used for making the medals which are offered as athletic prizes, for the medallions used as souvenirs of memorable occasions and for stamping out class pins. Commercially they stamp the metal tops of perfumery bottles, the bands of brushes, and innumerable small articles. Medals which are embossed on the reverse side are made under hydraulic pressure instead of being stamped. The dies though are made by the same process.

Die-making is one of the most delicate arts of the jeweler's craft. On the polished end of a steel block, about three inches thick and about an inch and a half in diameter, the engraver, following his design, carves and hammers and chisels until a

perfect reproduction, in the reverse, has been made. A wax impression is then taken to show imperfections. If the engraver's work has been satisfactorily done the die is taken to the hardening furnace. As it leaves the engraver's hands, the steel is so soft that one blow of the trip hammer would almost flatten the design.

The die is placed in the furnace, the heat turned on and in a short time the block of steel becomes white hot. A sudden plunge in a tub of cold water makes it impregnable even to the rasp of a file. Again it goes into the oven, is heated to a straw color, and again it is plunged in the tub. The second heating and plunge is to temper the metal; 1,800 degrees Fahrenheit is often reached in the heating process.



An Electric Annealing Furnace in Which the Replaceable Unit System of Heating is Employed



Night View of the Beautiful New Public Library, Fifth Avenue, from Fortieth to Forty-second Street  
The Light Cast on the Building Comes from Street Lamps on the Opposite Side of the Avenue

On the success of the tempering depends the life of the die. The slightest variation will cause a flaw, and the first blow from the hammer will split the block of steel. If the work has been done well the die is ready for use. It is secured in place under the hammer, a piece of metal is laid on, and the work of the hundred pound hammer begins.



Sky Line of Lower New York as Seen from the New Manhattan Bridge. So Well Lit is New York That the Framework of the Municipal Building Can be Seen to the Right of the "World" Dome



There have been many changes in the types of furnaces used in hardening the dies. The gas heater and the charcoal furnace were both in general use but with each it was difficult to regulate the heat. It was necessary to be in constant attendance, and to judge the temperature by the color of the metal. With the

would be rendered temporarily useless. Very recently the replaceable unit system of heating has come to the front. With the newer system the wires are carried in replaceable clay slabs or segments, each wired separately. In the event of a burn-out, the only delay caused is that necessary to take out the burned



The Sherman Statue in the Central Park Plaza

charcoal heater it was necessary also to have some one operate the blower.

Recently the electric heater came into general use, and with its continued use many improvements have been made. The first heaters consisted of a chamber or tube or other shaped structure with the heating wires wound round it, threaded through it or cemented in it. A burn-out meant the whole furnace

segment from the furnace and replace it with a new part. The replaceable units are made by the Multiple Unit Electric Company, and are used throughout the city.

When prices are high, think how much more you save every time you decide to get along without something.—*Washington Star*.



## WIRING AND INSTALLATION CONTRACTORS

### West of Broadway and Fifth Avenue

Amsterdam Ave 452—C A Christesen  
 Amsterdam Ave 648—H Blumstetter  
 Broadway 335—Park Sullinger  
 Broadway 379—J S Bihin  
 Broadway 1170—The Chas L Eidlitz Co  
 Broadway 1269—S W Electric Co  
 Broadway 2270—A Ostrom Rowe  
 Broadway 2382—H S Beidleman  
 Broadway 2742—H Reinwald Jr  
 Church St 50—L K Comstock & Co  
 Columbus Ave 220—T F Carr  
 Columbus Ave 549—Hoffman & Elias  
 Columbus Ave 649—F Craske  
 Cortlandt St 26—Cleveland & Ryan  
 Cortlandt St 39—Blackall & Baldwin  
 Cortlandt St 39—Electric Cons & Supply Co  
 Cortlandt St 84—Bleyer Elec Co  
 Duane St 172—Jas F Hughes Co  
 Eighth Ave 2719—Franklin Elec Co  
 Fifth Ave 65—L A Whitney Elec Co  
 Fifth Ave 75—H M Walters  
 Fifth Ave 503—Flucker & Keedwell  
 Greenwich St 183—Thomas & Johnson  
 Greenwich St 207—F A Frey  
 Greenwich St 255—F C Ross  
 Hudson St 660—Edw S Eaton  
 Sixth Ave 110—J V Johnson  
 Sixth Ave 419—C A Pinkham  
 Sixth Ave 617—Zenker & Siems  
 Sixth Ave 780—C C Bohn Electric Co  
 Sixth Ave 943—John M Flint  
 Seventh Ave 192—Emil Christensen Inc  
 Seventh Ave 727—Conduit Wiring Co  
 Seventh Ave 2290—Nathan Zolinsky  
 Thames St 27—Watson Flagg Eng Co  
 Thames St 27—McLeod Ward & Co  
 Varick St 132—Eugene P Etzel  
 Warren St 73—J P Hall  
 Warren St 96—Wm F Duffy  
 West St 116—Knickerbocker Electric Co  
 West St 463—Western Elec Co  
 West 14th St 130—The Electrical Contracting Co  
 West 17th St 156—Harry A Hanft  
 West 21st St 35—W J McClure & Co  
 West 26th St 54—Louis Freund  
 West 28th St 11—Thos L Dillon  
 West 30th St 110—Tucker Elec Con Co  
 West 31st St 109—Jandous Elec Equip Co  
 West 33d St 25—Harry Alexander  
 West 33d St 209—E J Elec Installation Co  
 West 34th St 45—Peet & Powers  
 West 38th St 3941—Dennis G Brussel  
 West 38th St 72—A J Buschman Co  
 West 42d St 25—Russell Haynes Electrical Co  
 West 42d St 2933—Germond & Turner  
 West 42d St 112—Oberg Blumberg & Bleyer  
 West 45th St 100—F A Bohling  
 West 49th St 422—Frank Pisch  
 West 72d St 176—T J Kaufman & Co  
 West 99th St 146—John A Marcato Co  
 West 111th St 147—Mariposa Electric Co  
 West 116th St 227—Lewis S Davis  
 West 134th St 314—M Kohosoff  
 Wooster St 12—Durbrow & Hearne Mfg Co

### East of Broadway and Fifth Avenue

Beekman St 74—Jordan Bros Inc  
 Broome St 105—B H Weinberg  
 Canal St 237—N. Klein & Co  
 Cedar St 16—Wm Truswell & Son

### Dover St 8—E W Hazazer

East 7th St 138—H A Schreiber  
 East 9th St 65—George D Beinert  
 East 9th St 51—B W Sandbach & Co  
 East 22d St 27—Hunt & Morgan  
 East 22d St 113—J Livingston & Co Inc  
 East 23d St 10—Porth Elec Co  
 East 23d St 42—Kimball Elec Construc Co  
 East 23d St 145—Bateman & Miller  
 East 25th St 122—Isador Fajans  
 East 28th St 114—Burkart Elec Co  
 East 30th St 13—Geo H Shuman  
 East 33rd St 219—Joseph Waintrob  
 East 37th St 207—Reis & O'Donovan  
 East 42d St 39—Edwards Elec Con Co  
 East 42d St 45—Cowden & DeYoung Inc  
 East 55th St 147—Morris Levi & Co  
 East 57th St 426—Behlert Elec Co  
 East 59th St 57—Stanley & Ruth  
 East 72d St 167—E J Dustman  
 East 77th St 426—Edw Zenker  
 East 88th St 176—M Strompf  
 East 125th St 13—L L Strauss  
 East 125th St 31—Leo S Stern  
 East 125th St 77—Peter Jansen  
 Fourth Ave 373—Hatzel & Huehler  
 Frankfort St 2630—J F Bidstrup & Co  
 Fulton St 44—E Klein & Bro  
 Fulton St 9698—Fulton Electric Co  
 Fulton St 227—Edward B Stott & Co  
 Fulton St 237—General Electric Inspection Co  
 Gold St 29—Mfrs & Inventors Elec Co  
 Great Jones St 38—Geo Weber & Bro  
 John St 84—Alfred Whiteley  
 Lexington Ave 1249—J E Woelfe  
 Liberty St 123—G Curt Kastner  
 Liberty St 126—S Arthur Brown  
 Madison Ave 314—Nimis & Nimis  
 Madison Ave 959—Kendelhardt & Morris  
 Madison Ave 1122—F W Cohn  
 Park Ave 103—Stehlin-Miller-Henes Co  
 Park Ave 1630—Guarantee Electric Co  
 Third Ave 221—Maurice Young  
 Third Ave 670—Silverman Bros  
 Third Ave 1021—E Kalkan  
 Walker St 84—M F Finkelstein  
 Wall St 2—Edwin C Gee  
 Wall St 99—Chas Davidson

### Bronx

Baker & Fox—313 E 141st St  
 Blackman & Guttman—226-28 East 144th St  
 Bogan Irving A—4192 Park Ave  
 Evans & Kaestner—893 Intervale Ave  
 Hinners F J Jr—585 East 135th St  
 Kips John—161st St and 3d Ave  
 Kirschhoff C Arthur—813 East 163d St  
 Landy Jacob—673 Elton Ave  
 Mangam H I & Co—333 East 162d St  
 Ross E I—356 East 138th St  
 Ryan Geo E—603 Tremont Ave  
 Schwarzler M & Son—460 E 167th St  
 Vielberth Jos F—1243 Taylor Ave  
 Woods Lewis H—2355 Jerome Ave

### Yonkers

Excelsior Gas & Elec Fixture Co—42 Warburton Ave  
 Imrie & Underhill—Bronxville N Y  
 Nugent A W Co Inc—83 Warburton Ave  
 Seaboard Elec Co—32 N Broadway  
 Westchester Elec Equip Co—34 N B'way

# *The Edison Monthly*

*October*

*1911*



## C O N T E N T S

VOLUME IV

NUMBER 5

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# Editorial

## *The Edison Monthly*

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More and more each season the Electrical Show comes to express the progress made by the electrical industries during the past year. Recent inventions and adaptations, improvements of methods and product are presented here as the best means of reaching not only those of the profession itself, but that large part of the public which is interested in some form of the activities represented by the Show.

This year's display, to be held in the New Grand Central Palace, October 11-21, has been dignified with the title "exposition," and there is much to warrant that change of appellation. From its beginning, chiefly as a trade event, concerning mostly those already in the business, the Electrical Show idea has developed into what the philosopher might see as an exposition of the relation of electricity to life. This will be most clearly seen in the department devoted to industrial exhibits.

Electricity is many things. It is probably, in its purely theoretic aspect, the effect of some sort of strain in the atmospheric ether, but the men of science themselves have not settled the precise details to their own satisfaction. At the other extreme, electricity is also a commodity, which The New York Edison Company, along with other central stations, dispense at certain rates. But besides all this, and more than it all, electricity is a new force in the world, which is quickly becoming identified with all departments of life, and especially of American life.

Electricity as displayed at the exposition will be shown keeping our records, doing our mathematics, producing music, aiding surgery, helping architecture, entering our homes with light and warmth, and making our industrial conditions. Protean like, it changes from one aspect to another, but beneath the kaleidoscopic shifting of form, one characteristic remains fixed; electricity, no matter where or how found, is the greatest labor-saving force the world has yet seen.

A feature of the Show certain to be of great value, both to visitors as well as exhibitors, will be the handling of the electric vehicle entries. The accommodations provided by the New Grand Central Palace made it possible for the motor-car

men to have the entire third floor given over to an indoors track on which to exhibit their vehicles.

A more striking argument on the electric's freedom from fire-risk could scarcely be offered than this actual use of cars indoors. Furthermore, prospective buyers will have the chance to make endurance tests, operating experiments, and to see for themselves the various details of electric vehicle maintenance, such as the charging and cleaning of batteries



It is quite the fashion now, and particularly at this season of the year, when the most of us have been spending a holiday week or two in the country, to develop a few ideas on the deserted farm situation. Those who know the country only in the pleasant weather and as guests, "paying" or otherwise, of some country household find it hard to understand the lure which city life has for the farm-bred boy and girl. Perhaps if the Summer boarders could for a change try December and January in the rural districts their comprehension might be greatly quickened.



Back of all other causes, the greatest source of discontent in the farming regions is the lonesomeness of the life and its incessant labor. Probably the rural telephone service has done and is doing more to dispel the sense of isolation than any other agency. It remains for electricity to lighten some of the back-breaking labor and to shorten the long hours of toil. For many years, this has

been more theoretical discourse than anything else, but here and there, throughout the country, chiefly in the West and middle West, are now to be found living examples of what has now ceased to be speculation. Some account of these electrified farms is included in this issue.



A recent issue of the *Bookman* contains a discussion of "the message of Manhattan," by various artists who have made the city the subject of their drawings. One of them, Mr J E Jackson, finds New York "a drama of achievement" in which the city's lights play an important element. "Ask any foreigner or out-of-towner coming to New York for the first time what most impresses him and he will instantly tell you—the lights. Everywhere they flash, they scintillate staggering and overpowering you. Things assume strange, new, bizarre proportions under their glow, and New Yorkers thrill in the atmosphere. The lights are artificial; but so is New York—supremely artificial, or it could never live through what it does. A drama is always artificial anyway. But, remembering the achievement and those who have made it, the lights are what New York looks up to. The whole city struggles toward them, impatient to get beneath their rays. Anywhere else New York is not itself and is not happy. It must be always to the fore, always startling, or it is not New York. The lights play chorus for the whole vast drama. The real New York has always the achievement, the people who have made it, and the lights."





Cathedral of St John the Divine

E. H. H. '01

## Apartment House Developments

**F**OREIGNERS and even people from other parts of the United States marvel at the fabulous sums of money paid by New Yorkers for apartment-house rentals. And when one stops to consider that many New Yorkers are paying \$20,000, and even more, for the rent of a single apartment for one year, questions come to the mind unsummoned and with much force.

Is it a waste of money? The people who, for a lease of an apartment, give a sum of money that would represent opulence to many are cool, calculating business men and although well accustomed to spending large sums insist on an adequate return for their outlay. On the surface it does not seem possible that any apartment in New York could be worth the great sums that are paid.

Going into the subject a little deeper, however, different considerations appear. Although the location and the appointments figure to a very great extent, still there are other things which come in for first consideration. Chief among these, perhaps, is service. With the very high-priced apartments goes complete service, including maids, butler and valet. This relieves the tenant of the worries of the servant problem,—a very troublesome one.

So when the \$20,000 rent has been paid, he has purchased Aladdin's lamp. Everything is arranged and done without the least friction or thought on his part, while all that the "good wife" need do is to give orders. Of course there are personal

bills to be met from the "butcher, the baker, the candlestick-maker," but everything else, such as electricity for all purposes, ice, heat, service, telephone, and a dozen other things, are included in the rent.

The aim seems to be to relieve the heads of a family of all of the plebeian details incident to the conducting of an elaborate household with its lavish entertaining. There are attendants in livery at every hand and with it all goes the stamp of wealth, and wealth means prestige. After all the \$20,000 may not have been thrown away.

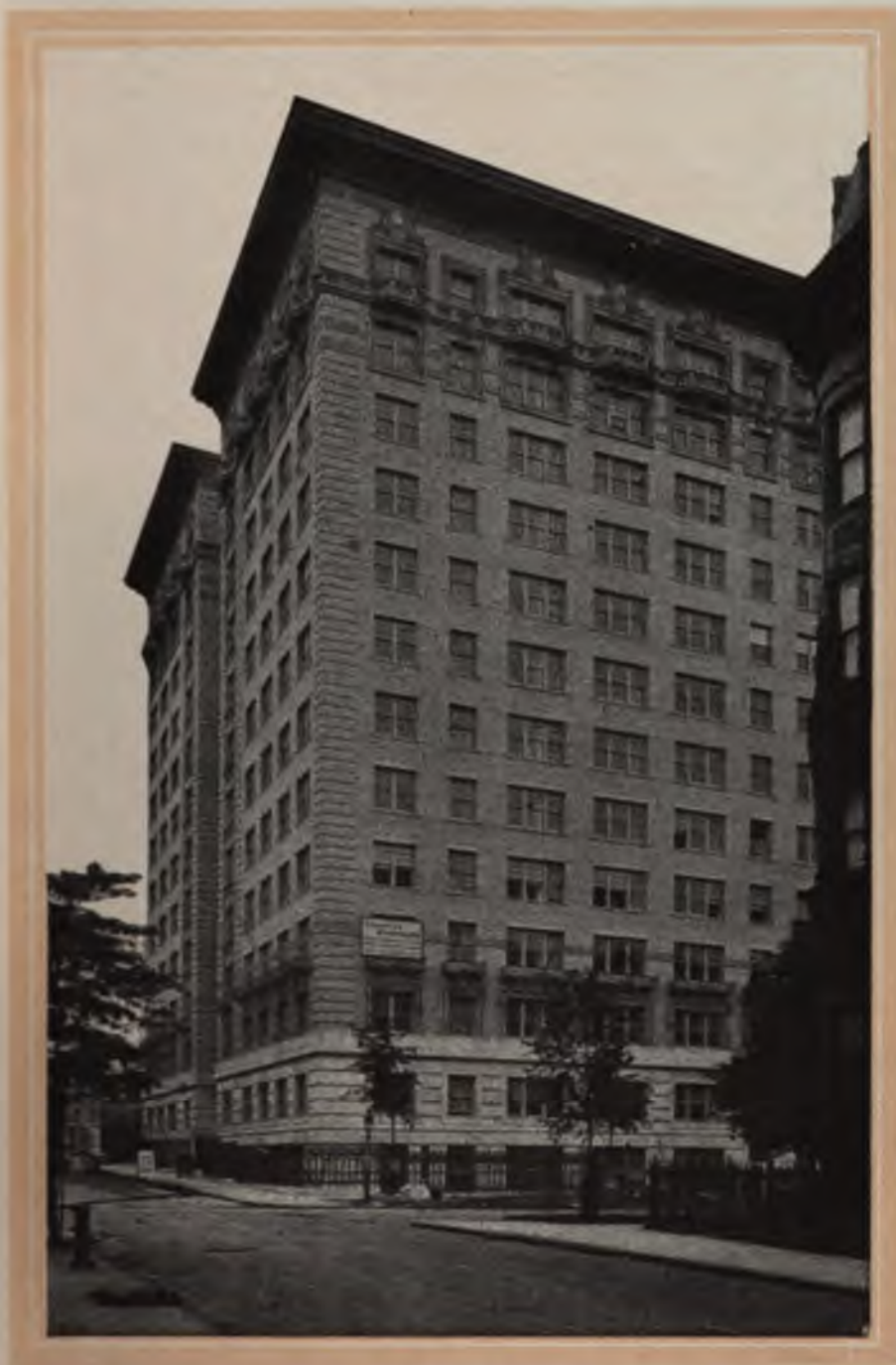
One of the finest examples of the modern apartment house in New York City is the Alwyn Court. Two splendid new apartment houses, which, although they do not pretend to be the last word in expensive appointments, possess every modern convenience and attraction, are the Evanston, West End Avenue and Ninetieth Street, and the Admaston, Broadway and Eighty-ninth Street. They are owned by the Eighty-nine-Ninety Company.

Both are twelve-story buildings. In the Admaston there are six apartments on a floor and the rents range from \$1,000 to \$2,200. The Evanston has both simplex and duplex apartments. The duplex apartments are beautiful in arrangement and decoration and are designed especially to afford excellent entertaining facilities. Some of the apartments have eleven rooms, fifteen closets and three baths. They rent for from \$2,000 to \$3,700 a year.



[The Admaston Apartments, Broadway and Eighty-ninth Street. 3,500 Lights and 100 Horse-Power





The Evanston Apartments, West End Avenue and Ninetieth Street—on Edison Service  
One of the Finest on the Upper West Side



## The Cod-Fish Industry

WONDERFUL tales have been told of the life of the Gloucester fisherman,—of his struggles in the fog and the ice off the "banks;" of his ship in collision with an Atlantic liner; of the loss of his dory-mate; of the home life in the fishing town; and of the dreaded message of colors half-

and tell the awed landlubber what finally became of the fish. He was glad to tell of dangers of the deep, but when his story reached the stage when the commercial disposal of the fish became the feature, his old pipe conveniently went out. And that ended his story for the day.

Thousands of tons of fish are



The Codfish Comes from the Shredding Machine on the Upper Floor, Dropping Through a Chute to the Tables at Which Girls Weigh and Pack it in Cardboard Boxes

masted when the vessel entered port. Other tales have been told of the pleasures of the fisher-folk,—of the home life, the romance, and of the triumph following a heavy catch. All of these things have been graphically rehearsed, but invariably the old salt has concluded his yarn with the safe arrival of his smack at some "Down East" port.

He has had little time and less inclination to continue his narrative,

brought annually to the ports on the New England coast. Records do not show the size of the yearly catch, but some idea of its enormity may be had when it is considered that the greater part of the fish eaten in this country is taken from the waters of the "banks."

Many towns maintain great fishing fleets, and following the sea is about the only vocation of the male population. Winter and Summer,

Spring and Fall,—as long as fish are biting,—it is for the fisherman to go out and bring them in. He stays away until the catch almost swamps his boat. Not until then does he hoist the "homeward bound" pennant.

Codfish form the largest part of the catch. Different methods are followed in getting the cod from the sea, but the most common way is called trawling. Two men put out in a dory and anchor a pair of buoys a short distance apart. A little further on they set a second pair. A line, or trawl, is stretched between each pair; hooks are attached at distances of about a foot, and each hook is baited with a herring.

"There is no bigger fool than a herring," is a common saying among the "Down East" fishermen. They are the prey for every fish, particularly the cod, and for this reason as well as for the ease with which they are caught, herrings are used as bait. A ring of slender saplings, known as a herring weir, is built in one of the numberless little bays along the coast of Maine. The saplings are set about six inches apart, with a funnel-shaped entrance at one side. A

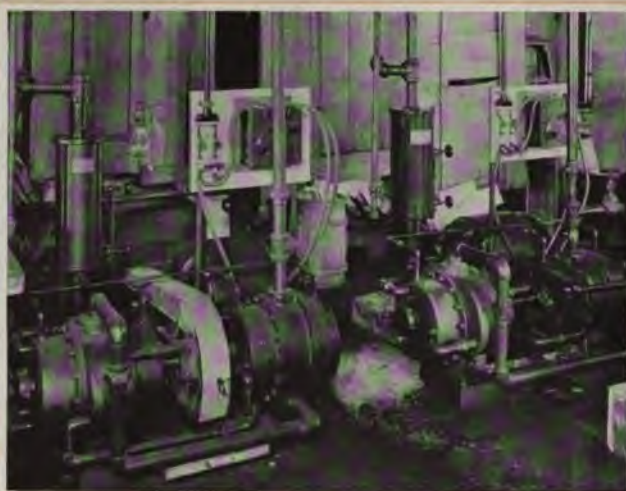
straight line of saplings running through the mouth of the funnel turns the fish into the weir, where they swim round and round in circles, until the tide falls. Then fishermen go after them in boats, and take them up by the netful. No net encircles the weir and nothing but the herring's stupidity prevents it turning to one side and swimming to



The Generator Which in the Old Days Made the Current to Run all the Machinery has Been Converted Into a Motor and is Now Used to Operate the Refrigerating Plant and the Brine Pumps

liberty. Instead of turning though, it goes around in a circle.

From three to five million pounds of cod are shipped annually to New York, to be shredded and packed in boxes and sent to every part of the country. Preparing and shredding codfish is the biggest part of the business of J W Beardsley's Sons of 474 Greenwich Street.



Peanut Butter, Smoked Beef, Figs, Dates and Smoked Herring are all Packed in Glassware or Tins and are Sealed in a Vacuum. This Picture Shows the Motors and Machinery Used to Operate the Vacuum Sealing Apparatus

Their fish are all caught "Down East," where are maintained three curing stations; one at Winter Harbor, one at Cutler and one at Eastport. To these stations the fishermen daily bring their catch. The cod are thrown to the dock, cleaned and washed, then they are put in brine and left for from three to four weeks until thoroughly "struck," when they are placed in the sun to dry. After two days on the drying flakes they are sent to New York to be skinned, boned, shredded, packed and sold.

After skinning, the fish are sent to a big table, where a number of women remove the bones; then they go through the shredder and come out on a table on the floor below, ready for packing. The shredding machine used by the Beardsley concern is the only one in the country, and so carefully is the secret of its construction guarded, that only two

men outside the firm members are permitted to operate it. These men have both been with the company for many years.

The firm was established by J W Beardsley fifty-two years ago and is now carried on by the younger generation. For ten years they maintained a large plant to generate the current used to run the ma-

chinery. They have just closed the plant and are now securing their current from The New York Edison Company.

Shredded codfish is only one of the commodities marketed by this firm. Smoked beef, sliced bacon, smoked herring, peanut butter, and figs, are also packed at the Greenwich Street establishment. Besides the machinery for all these foodstuffs, there are two immense cold-storage rooms. The generator which formerly supplied the current has been converted into a motor and is used to run the refrigerating plant to keep these rooms at the right temperature.

After a thorough test, the Chief Engineer of the Third Avenue Railway Company of New York has decided to replace all horse-drawn emergency wagons with two-ton electrics.



## England Awake

ONE of the interesting developments of the year has been the striking growth in popularity of electric light in Great Britain. For generations the candle has been the standard illuminant for ordinary purposes in English homes. Our brethren across seas were accustomed to candles; they had always used candles; so had their ancestors to the third and fourth, not to say the fourteenth, generation. And, apparently, they were content.

The electric light, for domestic use, was not welcomed there, as it was in this country, as a great improvement both for increased quantity of light and decreased quantity of labor.

Lately, however, a different spirit has been manifest in the English magazines. The poster design from the cover of an electric-lighting publication, reproduced here, indicates the change of spirit. John Bull, trudging along with his sacred candle, is amazed to discover an electric light.

An important factor in intensifying this change of public opinion was the great success of the electric displays at the coronation. Possibly nothing better illustrates the situation there than the mere statement that even in this gorgeous illumination, on which huge sums were lavished, candles as well as gas and electricity were used as luminants.

It is an open secret that the electric lighting acquitted itself

remarkably well. According to the information provided by the reports, there were no fires which could be charged against the electric current. It almost seemed as if the weather-clerk were in league with the electric-power companies, for many showers, accompanied by windstorms, played havoc with all the other kinds of lighting. "Where open piping with punched holes was used either for outlining a building, or for lettering or some heraldic device," reports the correspondent of the *Electrical Review*, "the effect of the wind was either to blow out all the lights, or to cause various sections to light at spasmodic intervals."

"The dishonest man is apt to find the people a rather suspicious lot."



John Bull Discovers Electric Light



## Italian Church Festivals

THE past month witnessed a considerable number of religious festivals in the various Italian quarters of the city. The Feasts of the Assumption, of San Justo, San Donato, San Giro, and San Rocco were among the Holy

ceived but local recognition, was celebrated with great ceremony in every Italian district. In the downtown settlement a long section of Oak Street was gaily lighted for three successive evenings, beginning with the fourteenth, and an extensive



Festival Lighting for the Celebration of San Rocco's Day in the Downtown "Little Italy." The Photographs Here Show the Arches and Festoons at Eleventh and Twelfth Streets and First Avenue

Days observed. Of these, the Assumption naturally occupied the position of first importance. The commemoration of San Rocco, as may be seen from the magnitude of the illuminations and the extent of the program, was also held in conspicuous esteem.

This feast, unlike the other saints' days mentioned, many of which re-

illumination was provided on Eleventh Street between First and Second Avenues. In the Bronx the Italian village on Nodine Hill was more elaborately decorated than on any other similar occasion of the year.

In these celebrations the Italian's love of demonstration and display finds as free and animated expression

as in the old country. The house fronts are all a-flutter with Italian, Papal, and American flags, band-headed parades pass through the principal streets, appropriate services are held in the parish church, and the remainder of the daylight hours are spent in recreation and such simple amusements as only a Latin can enjoy. The evening is enlivened with band concerts which are usually

of the great plague which raged throughout southern Europe during the middle of that century the saint devoted his life to relieving the sufferers and in the pursuance of this work traveled far into Italy. While there he himself fell a victim to the disease. His memory has ever since been revered, especially by the peasant people throughout France and Italy.



Twelve Hundred Lights were Used at Feast of San Rocco, held August 14th, 15th and 16th. During the Various August Feast Days, No Less than 10,000 Electric Lamps were Employed for Street Decoration

followed by an exhibition of fireworks lasting far into the night. These scenes, framed by the arched and festooned illuminations of streets and buildings, present a charming picture of light and color marked among the general grayness of New York.

San Rocco was born in Montpellier, France, early in the thirteenth century. Upon the breaking out

San Rocco's day has been observed here for some twenty years. The custom, as in the case of all such demonstrations, is the perpetuating of a centuries' old institution of the fatherland. Until within a very few years oil lamps were employed in the decorations. Since this usage has been discontinued the various societies have all secured lighting from The New York Edison Company.



## Eighty Maiden Lane

AT the point where the two streams of humanity merge, that six days in the week flow through crooked little old Maiden Lane and Liberty Street, in the busy financial district of New York, a large body of workers have for several months been making deep holes in the earth in which to sink the foundations of another "monument of progress" that will soon rear itself upward for twenty-five stories.

In the building of these skyscrapers electricity is playing a far more important part than the majority of people realize. Nearly a thousand horse-power of electrical energy is sometimes the total capacity of the motors used in the construction of a single one of the tall buildings of Manhattan. A few have even gone above a thousand horse-power.

The engineers and contractors who have had the tasks in hand have agreed that electricity is not only the most economical but the most reliable for hoisting purposes.

In addition to doing all of the hoisting, electricity compresses the air which drills through the solid rock down in the caissons, mixes the concrete for the foundation and floors and drives the riveting hammers. In fact, it has superseded other kinds of power in performing almost everything that is not done by hand.

In digging the fifty-two caissons for the new office building which will be known as "Eighty Maiden Lane," fourteen forty-horse-power motors were used in connection with the hoists. A 150-horse-power motor and two 100-horse-power motors

operated air compressors. There were also a number of smaller motors of about fifteen-horse-power capacity each, for running concrete mixers.

The foundation work is now very near completion, the caissons having reached bed-rock from thirty-five to fifty-four feet



These Two Powerful Hoisting Machines are Shown at Work. The First Steel Beams of the New Building at 80 Maiden Lane are Being Swung Into Place. A Temporary Wooden Shed has Been Built to Protect the Machinery from the Weather. As the Structure Goes Up these Hoists are Also Moved Up Several Floors at a Time. Eight of Them are Used in Constructing this Building

below the surface. All that remains of this part of the work is about twenty-five feet of excavating. The O'Rourke Engineering and Construction Company did the foundation work while the Thompson-Starrett Company will have charge of the steel construction.

This great construction company, the builders of the Municipal Building in which Edison current was also employed, already have a number of powerful electric hoists at work at Eighty Maiden Lane.

Nearly every day marks the arrival of more of their machinery and when the steel work is in full swing they will be using approximately 750 horse-power. This figure includes electric hoists, power for compressing air for the riveting hammers and for operating general construction machinery.

As soon as the steel frame work begins to creep upward two other companies will join forces with the Thompson-Starrett Company. These are Gollick and Smith, and the Smith Hoisting Company.

Gollick and Smith are fire-proofers. Within the province of this concern comes the task of making the fire-proof floor arches. The material used in these is a composition similar to concrete. Several electric motors



Beginning the Construction Work at 80 Maiden Lane. The Picture Shows the Arrival of One of the Thompson-Starrett Company's Forty-Horse-Power Electric Steel Hoists. These are Sometimes Lifted Into Place by Means of Their Own Power. This One Weighs About Five Tons and Can Lift 5,000 Pounds 200 Feet per Minute

are used to operate the machines that mix it.

The Smith Hoisting Company makes a specialty of hoisting apparatus. It has installed at Eighty Maiden Lane two forty-horse-power hoist hoists.

All of the current used in the erecting of this modern twenty-five story skyscraper is supplied by the New York Edison Company.

The Massachusetts S P C A has recently placed in service in Boston an electric animal ambulance. It is larger than the usual vehicle used for this purpose and is equipped with the best known apparatus for handling disabled horses. The vehicle can travel twenty-five miles on a single charge, attaining a speed of fifteen miles an hour. It has been stationed near the center of the teaming district of Boston.



## Paper Box Making

**A** THOUSAND machines, of many types and sizes and designed for many purposes, are used today in the manufacture of paper boxes. This vast assortment of machines is absolutely necessary, for with the constantly varying demand the number of styles of cardboard boxes used for packing all sorts of articles is without limit. One industry alone, the making of pens, pencils and erasers, requires boxes of four thousand different sizes and shapes.



The Corner Cutting Machines, where Sharp Knives Cut the Corners from the Scored Board, After Which the Sides are Folded Up

Paper-box making, one of the new but very important industries of this country, has made its greatest progress during the last half century and particularly within the past twenty years after modern machinery had been introduced. The business has assumed wonderful proportions in New York City, where the capital investment exceeds five million dollars.

One hundred years ago there was no such thing as a paper box. The container of those days consisted of nothing more than a heavy sheet of paper wrapped around the article to be carried. In time some progressive person conceived the idea of cutting part way through the paper in order to make it fold more readily. With this four-sided wrapper it became the custom to tuck the loose ends in, to prevent the contents slipping out. From this was evolved the idea of scoring the paper so both the sides and ends folded up, and then gluing the ends together. That was the way the first paper boxes were made, and it was years before any marked improvement was made. In those days a knife, a pair of shears, a kettle of paste and straight edge, with a supply of box-board, were sufficient equipment to start a man in business.

William Dobson, who established a small business in Maiden Lane early in the last century, was the first New York box-maker. In 1849 he became fired with the gold fever and went to California. He left his business in care of Richard Hughes,

who although he knew nothing of the business agreed to manage it until Dobson should come back. But Dobson never came back, so Hughes and his sons continued running the business until it became the present firm of B G Hughes and Brother of America.

The first box-making machine was built in 1849 by a man named Clark and was designed simply for scoring. Compared with the machinery of this day, it was a crude and cumbersome affair, but the tradesmen of the time saw in it wonderful possibilities for future development. The board was fed to it by hand, and the laborious turning a crank at the side carried the

material under the knives and through the machine. The first of these machines was set up by Hughes in Dobson's establishment. After the board had been passed through the scorer twice, once for the sides and once for the ends, it was necessary to cut out the corner waste, so the sides would fold up. To cut the corners, a heavy mallet and chisel and plenty of human energy were necessary. In

1865, Gustave A Jaeger invented a combining machine for pasting the box lining to the board before it was cut.

From these early devices, progress has been made slowly but steadily and today the modern box factory is fitted with a vast array of ma-



After the Sides of the Box are Bent the Operator Runs it Through a Machine Which Glues Heavy Stay Paper on the Corners, Holding it in Shape

chinery. There are single and double scoring machines, corner cutters, for cutting one corner or two at a single stroke; corner stayers of endless variety, cardboard slitters, knives, bending machines, gumming machines, sheet gluers, and a number of special machines for turning out the more elaborate work.

Some plants are operated by hand-power, others by steam-driven shaft-



ing, but the larger manufacturers use motor drive exclusively. It has been found that one of the great advantages of the motor drive and particularly the individual drive is its great economy of space, for in a paper-box factory more than any other space is at a high premium. A pile of boxes covering a hundred square feet and reaching from floor to ceiling amounts to only a few dollars when sold.

The smallest of the modern machines is the flange gluer, occupying a floor space of only thirteen by sixteen inches and weighing but sixty-two pounds. The largest is the combined slotter and creaser for working on double corrugated box-boards. It occupies a floor space of ten by fourteen feet and is used for cutting the board used in the manufacture of express package containers.

The manufacture of the box begins at the scoring machine. The heavy sheet of box-board is run through the



Gluing Ends on Heavy Boxes

machine and the revolving knives

score the board where the sides are to

be turned up.

As it comes from

these first rollers

it is carried from

the machine at

right angles and

passed under a

second roller

which scores it

for the end fold.

From the scoring

machine, the

board is taken to

the corner cutter

where the cor-

ners are chopped

out, leaving the

board ready for

bending. It is



The M D Knowlton Company, Makers of Paper Box Machinery, Maintain an Extensive Repair Department at Their New York Office, 203 Wooster Street. This Picture Shows One of Their Electrically Driven Lathes

then taken to the staying machine where the ends and sides are turned up and a strip of paper automatically pasted on each corner, holding the box in shape. The cover goes through the same process after the machines have been adjusted to the different size.

That is the process of manufacture of the simple card box, without any

boxes with compartments and fancy paper finishing inside, all require separate machines for their particular work.

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One of the customers of The New York Edison Company has a very up-to-date grocery store and has recently added to his list of elec-



**Machines for Shaping Boxes and Gluing Paper Covering On. The Paper is Gummed at the Operator's Left She Attaches it to the Box; Slides the Box Under a Form; the Box Goes Through the Machine and Comes Out With the Sides Folded Up and the Cover Paper Gummed On, and the Whole Box Completed**

finish or trimming. If the box is to be covered it is put on a machine which slowly revolves it while the covering is gummed on. This comes from a large roll, passes through a slit, then to a gumming attachment, and on to the box, and is automatically cut off when the box is finished. Round boxes, boxes with curved tops, or extension bottoms,

trically driven appliances a one-and-one-half horse-power motor for driving a churn. His patrons purchase cream at the store and for a small charge have it made into butter on the spot. The method is not only an excellent advertisement for the grocer, but it is also instructive for the children and others in the neighborhood.—*Electrical World*.



## Evolution of Manhattan Fire Fighting Apparatus

**S**IX - NINE - THREE—Six—nine—three. Over miles of telegraph wire, rousing sleeping firemen in their dormitories, warning the Salvage Corps of an impending conflagration, and sending a thrill into every newspaper office, the numbers are transmitted, and within a minute of the time the householder had turned in the alarm, the city's giant fire-fighting apparatus thunders

man as the motive power for the cities' fire-fighting apparatus.

Automobile engines are in use in many of the cities of this country, and New York, after watching their development during recent years, has at last been convinced of their superiority over the horse-drawn vehicle. The past month saw the announcement of changes which the Fire Commissioner is about to make, and within the next twelve months in the Borough of Manhattan the horse will have ended his heroic career.

Just what type of cars will be used is to be determined by a special board appointed by Commissioner Johnson. Springfield, Massachusetts, is the first city in the United States officially to adopt electrically driven fire apparatus. Last March an eighty-five foot hook and ladder truck, and a combination hose and chemical wagon were placed in service, and stationed at the Fire Headquarters station in the heart of the business district. A new station is being constructed which will have absolutely no accommodation for horses. The ladder truck is equipped with four three-horse-power, direct-current motors, mounted in the wheels, and the energy is supplied from a battery of eighty cells.

The truck with its full complement of men weighs ten tons, has a guaranteed speed of twenty miles an hour and will run fifteen miles at full speed on a single charge. In a test run it ascended a twelve per cent grade at eight miles an hour. It



A Type of Fire Engine Tender in Use in  
Vienna, Austria

through the streets to the scene of the blaze. Unless the fire be of unusual proportions, not many minutes will have elapsed before the engines will have completed their work and returned to quarters.

Such, in brief, is the work of the fire department in any great city. Improvements are coming today though, just as steadily as they have come in the past, and it seems not improbable that in the very near future the automobile fire engine will have entirely superseded the more picturesque horse, just as in years gone by the horse displaced

carried a total length of 325 feet in ladders, and a crew of seven men. The combination wagon has a guaranteed speed of thirty miles an hour, is fitted with a forty-gallon chemical tank, and carries 1,000 feet of two-and-one-half-inch fire hose.

London has had great success with storage-battery cars, and other European cities are gradually introducing them. Edison is testing at his laboratory in Orange a battery which he claims will take a high charge in a short period of time. In describing it he said recently:



Electric Engine Used in Amsterdam by the Metropolitan Fire Department

"It is not a new battery. It is the same old battery. We simply discovered its greater possibilities and are working all the time to develop whatever improvements we may. With thinner plates in greater number, the battery will take an enormous charge in a very short time. With this development perfected the day of the seven or eight-hour connection with a charging board will have passed, beginning a new era in the use of the electric vehicle."

In the early days of New York,

when among their other worries the old Dutch burghers had the constant presence of fire among them, there were ordinances requiring every resident to leave three full water buckets on his door-step and ten at the town pump "wen ye sun do go down."

Such was the primitive fire-fighting machinery in the days of New Amsterdam. Fire Wardens were appointed to see that the various regulations were enforced. In 1648, when there were about one hundred and twenty structures in the city, ordinances were passed forbidding the construction of thatched roofs or wooden chimneys. In about 1670 an assessment was levied to obtain money to purchase fire buckets in Holland, but instead of going to Holland the town cobblers were called upon to make the buckets of leather. These buckets, with ladders, axes and picks, were kept at all street crossings, ready for instant use. The only fire department then consisted of the "Rattle Watch," an organization comprising fifty members. Certain members were delegated each night to patrol the streets, and at their call the rest of the company responded to fight the fire.

In 1664 New Amsterdam was taken by the British, and under English rule more stringent fire regulations were passed. The first fire engines were brought over from London in 1731, and corps of men were trained to use them. The engine consisted of nothing more than a tank mounted on wheels into which the water had to be fed by a bucket. It was pumped out by hand. Lines of men were kept busy carrying the buckets to the engine,



The First Electric Fire Engine Used in England.  
Adopted by the London County Council

while others of the firemen worked on the cumbersome pump handles. The handles, projected from the sides of the engines, and were manned by four or five men on each side. Of course the range of effectiveness of the stream was very small.

In 1822 the general use of the fire-bucket gave way to the more practical hose line. In 1854 the Volunteer Fire Department consisted of about four thousand men, organized as forty-nine engine companies, fifty-six hose companies, twelve hook and ladder companies, and four hydrant companies. Steam engines were in use in London in 1832, but it was not until thirty years later they were adopted in New York. The firemen opposed the improvement; they wanted the hand machines, the excitement of pulling them to the blaze and the frequent fights which marked their runs through the streets.

In the early sixties the Volunteers were subjected to a hot fire of criticism by the public. No evidence was secured to back the claims of the critics, but in 1865 the Volunteers were abolished by law.

Rapid indeed has been the development of the New York Fire Department since its organization in '65. In 1866 a number of signal stations were established, from which the alarms received in the Headquarters telegraph office were transmitted to bell-towers in scattered parts of the city. In 1870 the Chester automatic box was put in operation in the down-town part of the city. It covered a system of 346 alarm-box stations. During all this time the Department continued to gain in efficiency. The improvements added included the water-tower, scaling ladders, swinging harness in the stables, and improved couplings for the hydrants.

In addition to the regular equipment of portable fire-fighting apparatus, there is the high-pressure pumping system, which protects a large portion of the city. As this method of fire fighting grows it is natural to believe that the day of the belching fire engine, either motor or horse drawn, will end.

No more apparatus than a cart to carry the necessary lines of hose is required where the high-pressure system protects the property. Great improvements are being made in the system and as rapidly as possible its area is being enlarged. With the extension of the high-pressure zone to cover the entire city, using, as it would, electric power exclusively; with the great modern telegraph system to transmit the alarm; the storage battery hose carts and with powerful searchlights to aid in the night work, the time seems not far distant when electricity will become the chief auxiliary in fire fighting.

## Electric Roadster in the Four-State Tour

**T**HERE was considerable surprise, not unmingled with amusement, when at the start of the western Four-State Tour of Indiana cars, there was found among the contestants one small electric. This run, which was restricted entirely to cars manufactured within the State of Indiana, found no less than thirty-four participants, namely, thirty large gasoline touring cars, three loaded gasoline trucks and the one small Waverley Electric roadster.

The route laid out for the tour covered a little over 1,400 miles, including stops at Greencastle, Brazil, Terre Haute, Danville, Champaign, Monticello, Bloomington, Peoria, Pekin, Litchfield, Edwardsville, East St Louis, Troy, Louisiana, Frankfort, Hannibal, Keokuk, Muscatine, Clinton, Maquoketa, Freeport, Elgin, Michigan City, Logansport, Lafayette, Lebanon, Paris, Decatur, Springfield, St Louis, Quincy, Burlington, Davenport, Dubuque, Rockford, Ills, Chicago, South Bend, and back to Indianapolis on July 26th.

Twelve days were allowed for the distance, which literally was figured at 1,431.9 miles. On such a trip as this, the small Waverley, equipped only with the usual lead-battery roadster, started off in competition with the large gasoline touring cars. In fact, so unequal were the chances that the entrance of the electric was generally considered only an advertising "bluff." No one expected the car to last out the tour.

Terre Haute was the first stop, 82½ miles from home. After an extra

charge the car went on to Paris, Danville and then to Decatur, making 157 miles in a single run. A delay was caused at Davenport by an accidental disconnection in charging, but the Waverley caught its rivals at Dubuque. Here an extra charge was required owing to the severe strain on the batteries and the Waverley parted company with the rest of the cars at this point. Between Dubuque and Rockford a heavy storm was encountered and the worst hills and roads on the route and a short rest was taken at Chicago.

The total running time of the tour was 124 hours, as compared with 73 hours for the swiftest of the gasoline cars that made the trip. When the time consumed in charging is taken into account, and considering all the conditions of road and weather encountered, it is admitted that this electric roadster made a trip notable in the annals of automobile tours.



Waverley Electric in the Four-State Tour



### Regarding Meters

**D**ELIVERING meters to a great cityful of people is, as one may guess, a difficult and delicate task and one of the many problems that a big electric lighting company has to solve. On the careful handling of these finely balanced little mechanisms depends their accuracy.

Many a dissertation has been rendered on the fiendish tendency of meters to make recordings of current never used. The fact of the matter is that if a meter should take it into its head to go on a rampage it would

be just as likely to record low as it would to record high. Therefore it is as much to the Company's advantage as it is to the customer's that the meter should read correctly. Furthermore, if a meter is tested and found to be "fast," restitution is always made.

The New York Edison Company has lately made several improvements in its system of handling meters that are doing much toward eliminating the chance of injury to meters between the time when they leave the laboratory in perfect condition and installation.

The baker's pie wagon was responsible for the change.

Formerly a number of meters were put into a large box and these boxes piled up in the meter wagons. The only safeguard provided against rattling and banging was a mat on the floor of the wagon, which, by the time several boxes of meters had been piled upon it, lost all its resilience.

One day a wide-awake individual from the Meter Department happened to peep inside of a pie wagon. He saw how the pastries were placed in little separate compartments so that the meringue would not get mixed with



Looking Through One of the New Electrics Recently Put into the Service of the Meter Department of The New York Edison Company. This Picture Shows the Arrangement of Meter Compartments with Alleyway Through the Center. The Cushions can be Seen Protruding Over the Sills of Each Compartment. These Wagons Have Solved the Difficult Problem of Meter Handling

the custard and the pumpkin with the apple. He could not help but see the advantages of this scheme applied to the carrying of meters.

The ultimate outcome was the placing into service of six new electric vehicles with a capacity of 3,000 pounds each, designed after the pie wagon, with racks running along the sides

for holding the meters and an alleyway from front to back. The compartments are of various sizes to accommodate the different kinds of meters, each wagon carrying forty-two. Every compartment is fitted with a cushion which covers the floor and part of the walls and drops over the sill, so that once a meter has been set inside it is practically safe and secure.

The island of Manhattan is divided into three distribution districts for the convenience of the company. Formerly there was a meter storehouse in each district and all meters wanted either up or down town were transported from the main storehouse, at 117 West Thirty-ninth Street, to the district storehouse and thence to their final destination.

In revising the system, the branch storehouses were abolished. All rec-



Delivering Meters in One of the Six New Vehicles Especially Equipped for This Kind of Work. They are Lansdens, Detroit's and Walkers. Each One has a Carrying Capacity of 3,000 Pounds. There are Forty-two Meter Compartments in Each and a Space for Tools and Meter Boards

ords are now kept at the main storehouse, which has a capacity for holding 20,000 meters, and all meters are taken from here directly to "the point of use." For transporting them, the electric wagons with the cushioned compartments are employed. The wagons are loaded late in the afternoon and start out the following morning, delivering directly to the different jobs ahead of the wiring crew. This effects a considerable reduction in the length of time a customer has to wait for his meter.

A meter leaves the storehouse in perfect condition, is inspected three days after it is set up, and at the end of the month undergoes a complete test. A great improvement of meters at the time of the first month's test has been recorded since the adoption of the new system.



## The Manufacture of Vacuum Goods

EVERY business venture is in its way an act of faith, only some seem more so than others. The man who opens a corner grocery store has not greatly strained his imagination. Indeed it is fairly obvious that sugar and flour must always be bought somewhere, and the vision entailed is concerned only

pecting heated beverages only when taken from the stove, and chilled ones when removed from the ice-box or the well; they had known nothing better nor asked it.

Frankly, the vacuum bottle is a luxury, or a convenience, for those who can afford to pay for it. On account of its original cost, and its comparative frailty, not even its most sanguine advocates recommend it as a future addition to the workingman's dinner-pail.

Accepting this limitation and making the most of it, has been the method of the manufacturers of the "Janus" vacuum bottle, one of the newer ones to invade the market. This firm admits that vacuum



Packing Vacuum Bottles

with the selection of one location.

The man, however, who convinces the public of a need of which it has hitherto remained in blissful ignorance, has at least been brushed by the poet's eagle feather.

Thus it seems as if the man who first conceived the hot-and-cold bottle,—(to keep hot things hot, and cold things cold)—not as a scientific possibility, but as a commercial fact, was distinctly possessed of the eye of faith. For a few thousand years, the earth's population had been ex-

goods are necessarily expensive and consequently makes it the rule to give the purchaser his money's worth. Incidentally, the making of vacuum goods is another one of the trades in which electricity has come to play an important part.

The principle of the vacuum bottle is that of one holder inside another, with a small air space between, which serves as insulation. The two are then fused together, with such support for the inner tube as can be devised, silver plated to prevent the

transmission of light waves and placed in a suitable container. Simple as this sounds, it is just the perfection of the several details which determines the quality of the product. Its success is demonstrated by the new large factory building of the Janus Company at 10 Beach Street.

The basis of the bottle-making, then, is the double glass container. These come to the Janus factory in tubings of approximately correct size, and are then cut roughly to length. In this process, as in all handling of glass, tremendous waste through breakage seems necessary, for whenever flaws become evident there is nothing to do but throw away the defective glass.



**Expert Glass Blowers Fuse the Inner and Outer Tubes**

In fact, this is one of the chief elements of expense in the making of vacuum goods, for the defect may not appear until some of the finishing processes are reached, in which case considerable cost of labor has been added to that of material.

Next, the work of the glass blowers begins. Expert craftsmen, commanding from \$40 to \$50 a week, heat

the glass tube, and when it is in exactly the proper molten condition, shape it to the needed length, at the same time rounding and closing the bottom. The softened material is kept in shape by the stream of air within, which comes from motor-driven pumps. The following step is distinctive of the Janus bottle. In some earlier makes



**In the "Janus Factory" the Mercury-Fall System Gives a High Vacuum. Pumps are Motor Driven**





Wicker Carriers and Casings are also Manufactured.  
All Machines are Motor Driven

of vacuum goods, the inner tube is supported by an asbestos padding at the bottom between the two glasses. In the Janus this has been simplified. On the curved surface are three little dents, where the outer shell touches and supports the inner. These spots are mica coated to maintain the insulation.

When the tops have been fused together and properly shaped by skilled glass workers, the bottle is ready to be washed and silver plated. This last is a highly picturesque performance, at first sight suggesting a sleight-of-hand trick, and will be shown in the Industrial Exhibits Division of the coming Electrical Show. First an acid and then a silver solution is forced between the two glass shells, through the hole in the bottom. This can be done only by first drawing out the air, after which the pressure then forces the liquid in. The bottle with this rather dirty-looking solution is placed in a tank of scalding water. A few seconds later it emerges, transformed

into a silver-coated object, beautiful to behold. The plating is then set by baking in an electrically heated oven.

Making the vacuum is the next and the most delicate operation of all. By ordinary pumping, one can produce a vacuum of about seven pounds to the square inch, which serves to keep liquids

hot or cold for a certain number of hours. When this has been done, in the Janus factory, a far more perfect vacuum is then secured by a "mercury-fall" system, so-called. There is an intricate arrangement of tubes of mercury, which in falling produce the necessary pressure to remove the last vestige of air, a vacuum of some fourteen pounds to the square inch. This is guaranteed to keep things hot forty hours and cold ninety, or longer.

Equally important from the commercial standpoint are the details that have been worked out for the making of the various kinds of cases, for vacuum goods are provided in different styles and sizes to meet the public demand, and anything, from a hotel carafe to a nursery bottle, may now be had in this ware. Accordingly, the making of wicker cases and baskets, of leather holders and straps, are all part of the work going on in the Janus factory, the power being supplied from the mains of The New York Edison Company.

## Electricity and the Farm

**W**ITHIN the last few years the pages of both the scientific and popular or domestic magazines have contained references to the use of electricity on the farm. In the beginning this was merely a suggestion, a discussion of possibilities, but the last few months have brought forth accounts of what actually is being done to electrify the farm.

Curiously enough, the examples selected for the description all appear to be located west of the Alleghanies. Yet much nearer home lies what is possibly the greatest field of development, the territory of the abandoned farm. Standing gray, weather beaten and forsaken, with sagging roof and broken windows, overlooking many miles of neglected land, the deserted farmhouse is the very image of desolation. Perhaps the abandoned country is not more than 150 miles from New York City, with huge express trains running through it daily, never pausing.

The most fundamental causes of this retrogression were loneliness and the incessant toil of the farmer's life. Years ago, men might be excused for thus giving up the struggle; but today agriculture is no longer a matter of guess work, but a scientific trade, to lighten the labor of which numberless mechanical contrivances have been invented.

The question naturally arises, what could be done with these abandoned farms if electricity were brought into play as it now is in many other parts of the country where transportation facilities are no better and where the soil is, perhaps, not as rich? In the West engineers are building great walls of masonry behind which to store water and create farms out of desert land, while here in the East in striking contrast, a part of our most fertile land is deserted.

The redeeming of the abandoned farmland in New England could, no doubt, be accomplished in a very large measure through the agency of electricity. The country abounds in natural power resources, so that the matter of producing current would be a minor consideration.



*Photographs Used with this Article by Courtesy of Electrocraft.*

One of the Three Feed Grinders Located on Different Parts of Hawthorne Farms and Operated by a Portable Ten-Horse-Power Motor Mounted on an Ordinary Farm Truck. They are Equipped with Three Sets of Burrs for Grinding Corn on the Cob, also Shelled Corn, Wheat, Oats, Barley or Any Kind of Small Grain, Either Separately or Mixed Together





When Milking is Over, the Milk is Run Through a Filter and Cream Separator. The Average Amount of Milk from the Ninety Cattle is About 1,800 Pounds per Day and it Takes Two and a Half Hours to Run it Through the Separator

This will undoubtedly come to pass, at some future time, as it has in many other parts of the country. In some sections of nearly every State in the Union there are pole lines reaching out into the rural districts, carrying electrical energy to the farmer. For a time it was regarded as a fad or amusement to be indulged in only by the wealthy. But this skepticism had to give way when a farmer visited his neighbor's place and found electricity doing the milking, churning, grinding, threshing, sawing, lighting and doing them better and quicker than they were ever done before.

The genuine farmer is a son of Missouri "by adoption and grace" and, therefore, he must see with his own eyes in order to be convinced of the value of electricity in farm work before laying out his money for it.

One of the worst difficulties which the farmer has had to face in recent years, and which electricity is to a very large extent clearing up, is lack of good help. Few people realize how really serious the labor situation in the farming districts is. The great cities, with their shops and factories, the eight-hour day, the lights and amusements have practically robbed the country of its able-bodied men. One after another they leave the old home, and who is to harvest the crops? Who is to do the housework and dairy duties now that the girls are in the city? The writer has seen valuable crops go to waste because help could not be hired. The farmer's workday is from sunrise to sunset—scarcely an inducement to a man used to working seven or eight hours.

There seems little use in trying to keep the girls and boys from going to the city. That has been tried time and again, so far, with little



Milking by Electricity on Hawthorne Farms, near Barrington, Ill. Electricity Does Most of the Work on this 1,700 Acre Farm, the Current Being Supplied by the North Shore Electric Company. Ninety Cows are Milked by Electricity. Three Machines are Used, Each Milking Two Cows at Same Time

result. But here electricity offers a solution of the problem. Every electrical device that has been invented for use on the farm tends toward the saving of time and labor and the reduction in the amount of hired help needed; in fact, with but few exceptions, the most common appliances insure one-man operation.

The dairy apparatus leads all others perhaps in this particular. With the electric milking machine it is possible

After the crops are harvested the electric-driven thresher comes into service. This thresher is no different from the steam or gasoline-driven machine, except that it is belted to a portable motor attached by a flexible cable to a convenient source of supply, which may be an outlet on a post at some point where it might be frequently required. Other very important applications are the motor-driven hay-press and hay-hoist or hay-fork, as it is commonly called.

The portable motor is also used in operating the husker and shredder, the sheller and similar machines. By means of a line shaft a single motor may operate meat-choppers, grindstones and woodworking machinery, including circular saws, band saws, lathes, surfacers and planers.

The electric horse-clipper and groomer are very handy devices in a stable. The ensilage cutter constructed with blower and self-feeder is a type of farm machinery

generally used with its own motor, while the electric incubator is said to be simple and satisfactory. Motor-driven pumps are used extensively for operating sprinkler systems, irrigation and drainage. Fast becoming a useful and common piece of farm equipment is the grist mill, to which electric drive is generally applied.

Perseverance as defined by a colored preacher: "It means firstly, to take hold; secondly, to hold out; thirdly, nebber to let go."



**Portable Motor Running One of the Grinders, Purposely Placed Near the Door so it Could be Belted to the Motor from the Outside. The Motor is Protected from the Weather by a Suitable Wooden Cover. A Saving of One-third was Effected by Grinding Grain on Farm Instead of at Local Feed Mills**

to milk two cows in about six minutes, including time required for changing and setting. The electric churn and cream separator are further assistants in dairy tasks. On large dairy farms electric power for refrigeration and for circulating milk over a cooling surface is a practical necessity.

The soil is now tilled by electricity, the plow being drawn back and forth across the field by an endless wire cable actuated by motor-driven machinery. Disc cultivators and harrows are similarly operated.



## WIRING AND INSTALLATION CONTRACTORS

### West of Broadway and Fifth Avenue

Amsterdam Ave 648—H Blumstetter  
 Broadway 335—Park Sullinger  
 Broadway 379—J S Bihin  
 Broadway 1170—The Chas L Eidlitz Co  
 Broadway 1269—S W Electric Co  
 Broadway 2270—A Ostrom Kowe  
 Broadway 2382—H S Beidleman  
 Broadway 2742—H Reinwald Jr  
 Church St 50—L K Comstock & Co  
 Columbus Ave 220—T F Carr  
 Columbus Ave 549—Hoffman & Elias  
 Columbus Ave 649—E Craske  
 Cortlandt St 26—Cleveland & Ryan  
 Cortlandt St 39—Blackall & Baldwin  
 Cortlandt St 39—Electric Cons & Supply Co  
 Cortlandt St 84—Bleye Elec Co  
 Duane St 172—Jas F Hughes Co  
 Eighth Ave 2719—Franklin Elec Co  
 Fifth Ave 65—L A Whitney Elec Co  
 Fifth Ave 75—H M Walters  
 Fifth Ave 503—Flucker & Keedwell  
 Greenwich St 183—Thomas & Johnson  
 Greenwich St 207—F A Frey  
 Greenwich St 255—F C Ross  
 Hudson St 660—Edw S Eaton  
 Sixth Ave 110—J V Johnson  
 Sixth Ave 419—C A Pinkham  
 Sixth Ave 617—Zenker & Siems  
 Sixth Ave 780—C C Bohn Electric Co  
 Sixth Ave 943—John M Flint  
 Seventh Ave 192—Emil Christensen Inc  
 Seventh Ave 727—Conduit Wiring Co  
 Seventh Ave 2290—Nathan Zolinsky  
 Thames St 27—Watson Flagg Eng Co  
 Thames St 27—McLeod Ward & Co  
 Varick St 132—Eugene P Etzel  
 Warren St 73—J P Hall  
 Warren St 96—Wm F Duffy  
 West Broadway 578—M & S Electric Co  
 West St 116—Knickerbocker Electric Co  
 West St 463—Western Elec Co  
 West 14th St 130—The Electrical Contracting Co  
 West 17th St 156—Harry A Hanft  
 West 21st St 35—W J McClure & Co  
 West 26th St 54—Louis Freund  
 West 28th St 11—Thos L Dillon  
 West 30th St 110—Tucker Elec Con Co  
 West 31st St 109—Jandous Elec Equip Co  
 West 33d St 25—Harry Alexander  
 West 33d St 209—E J Elec Installation Co  
 West 34th St 45—Peet & Powers  
 West 38th St 39-41—Dennis G Brussel  
 West 38th St 72—A J Buschman Co  
 West 42d St 25—Russell Haynes Electrical Co  
 West 42d St 29-33—Germond & Turner  
 West 42d St 112—Oberg Blumberg & Bleyer  
 West 45th St 100—F A Bohling  
 West 49th St 422—Frank Fisch  
 West 52d St 170—T J Kaufman & Co  
 West 53d St 121—C A Christesen  
 West 90th St 146—John A Marcato Co  
 West 111th St 147—Mariposa Electric Co  
 West 116th St 227—Lewis S Davis  
 West 134th St 314—M Kohosoff  
 Wooster St 12—Durbrow & Hearne Mfg Co

### East of Broadway and Fifth Avenue

Beekman St 74—Jordan Bros Inc  
 Broome St 105—B H Weinberg  
 Canal St 237—N. Klein & Co  
 Cedar St 16—Wm Truswell & Son

### Dover St 8—E W Hazzer

East 7th St 136—H A Schreiber  
 East 9th St 65—George D Beinert  
 East 9th St 51—B W Sandbach & Co  
 East 22d St 27—Hunt & Morgan  
 East 22d St 113—J Livingston & Co Inc  
 East 23d St 10—Porth Elec Co  
 East 23d St 42—Kimball Elec Construc Co  
 East 23d St 145—Bateman & Miller  
 East 25th St 122—Isador Fajans  
 East 28th St 114—Burkart Elec Co  
 East 30th St 13—Geo H Shuman  
 East 33rd St 219—Joseph Waintrob  
 East 37th St 207—Reis & O'Donovan  
 East 42d St 39—Edwards Elec Con Co  
 East 55th St 147—Morris Levi & Co  
 East 57th St 426—Behlert Elec Co  
 East 59th St 57—Stanley & Ruth  
 East 72d St 167—E J Dustman  
 East 77th St 426—Edw Zenker  
 East 88th St 176—M Strompf  
 East 125th St 13—L L Strauss  
 East 125th St 31—Leo S Stern  
 East 125th St 77—Peter Jansen  
 Fourth Ave 373—Hatzel & Buehler  
 Frankfort St 26-30—J F Bidstrup & Co  
 Fulton St 44—E Klein & Bro  
 Fulton St 96-98—Fulton Electric Co  
 Fulton St 227—Edward B Stott & Co  
 Fulton St 237—General Electric Inspection Co  
 Gold St 29—Mfrs & Inventors Elec Co  
 Great Jones St 38—Geo Weber & Bro  
 John St 84—Alfred Whiteley  
 Lexington Ave 1249—J E Woelfe  
 Liberty St 123—G Curt Kastner  
 Liberty St 126—S Arthur Brown  
 Madison Ave 314—Nimis & Nimis  
 Madison Ave 959—Kendelhardt & Morris  
 Madison Ave 1122—F W Cohn  
 Park Ave 103—Stehlin-Miller-Henes Co  
 Park Ave 1630—Guarantee Electric Co  
 Third Ave 221—Maurice Young  
 Third Ave 670—Silverman Bros  
 Third Ave 1021—E Kalkan  
 Walker St 84—M F Finkelstein  
 Wall St 2—Edwin C Gee  
 Wall St 99—Chas Davidson

### Bronx

Baker & Fox—313 E 141st St  
 Blackman & Guttman—226-28 East 144th St  
 Bogan Irving A—4192 Park Ave  
 Dwyer & Carey—926 East 167th St  
 Evans & Kaestner—893 Intervale Ave  
 Hinners F J Jr—585 East 135th St  
 Kips John—101st St and 3d Ave  
 Kirschoff C Arthur—813 East 163d St  
 Landy Jacob—673 Elton Ave  
 Mangam H I & Co—333 East 162d St  
 Ross E L—356 East 138th St  
 Ryan Geo E—603 Tremont Ave  
 Schwarzler M & Son—460 E 167th St  
 Sladek F—3440 Third Ave  
 Vielberth Jos F—1243 Taylor Ave  
 Woods Lewis H—2355 Jerome Ave

### Yonkers

Excelsior Gas & Elec Fixture Co—42 Warbur-  
 ton Ave  
 Imrie & Underhill—Bronxville N Y  
 Nugent A W Co Inc—83 Warburton Ave  
 Seaboard Elec Co—32 N Broadway  
 Westchester Elec Equip Co—34 N B'way

# The Edison Monthly

November

1911



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# Editorial

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It has become so trite to prefer this season's achievements above those of the year preceding that the "biggest and best ever" has come to smack of the circus.

Yet only such, in intent, however circuitous the phrasing, can adequately describe the Electrical Exposition just past. It was the biggest ever, in scope of subject and attention attracted; the best in selection and presentation of material.



An exhibition may be only a mass of articles, which for some reason or other are displayed under one roof. Or again, very much the same objects could be so placed and classified in relation to each other and the whole, that they tell a definite story or present a set of facts. Such an assemblage unquestionably was the Electrical Exposition of 1911. On the different floors were the electrical manufacturers with their products and then the trades in which these products are utilized.

To the man fully acquainted with the electrical business possibly this exposition of the industrial applications may not be necessary, but for the general public such a display was certainly informing. There is entirely too much of a tendency today for one man to know only his own trade, and probably a very limited portion of that. Such a collection as the "operative exhibits," shown on the second floor at the Electrical Show, enables the visitor in some slight way to break down the barrier which more and more tends to turn the making of things into a mystery. Incidentally, the laymen learned the part played by electric current in what we eat and wear, and in the fifty odd other industries represented.



Not the least significant feature of the Exposition was the presentation at its opening of a tribute to Edison from the copper interests of the country, producers and consumers, for electricity has a close relation to both of these—it might be said to be at the same time cause and effect. The enormous growth of the central stations during the last generation has brought forth a tremendous call for copper, and still more copper, through which to transmit electric current. In turn this demand has resulted in improved methods of production—the electrolytic refining of metal, which superseded the wasteful Swansea process.

Sitting there, behind the shining cubic foot of copper, the inventor himself was a striking reminder of the youth of our industry. It is not only within the memory of man that electricity has become a moving force in the world, both social and commercial, but within the lifetime of one individual man. It is one of the happy elements of this circumstance that those who have gained through Edison's work can gather and pay honor to whom honor is due.



In the end, the success of any exposition rests on the benefits accruing to the exhibitor. Should these be lacking or unimportant, no matter how brilliant the display, the event cannot become permanent. To ascertain definitely to what extent exhibitors found their expectations gratified, THE EDISON MONTHLY sent telegrams to each participant asking for an expression of opinion as to the worth of the Show from a business standpoint. Complete returns are not available for this issue of the MONTHLY, but those now on hand give unmistakable confirmation of any claims made by the management.



Another element in which this Electrical Exposition of 1911 differed from its predecessors was the presence of a series of exhibits provided through the courtesy of officials of the several branches of the United States Government. The beginnings of electrical enterprise were pictured by models from the National Museum;

the use of electricity in agricultural research; the guarding of public interests by the Bureau of Standards; the applications of electrical current by the Army and Navy—all of these were represented by impressive displays.



Among all the newspaper comment upon the Electrical Exposition just past, the most striking appeared in the *Call*, the recognized organ of the socialist party in New York. "Every working man and woman, every dweller in a dark and illy ventilated tenement, every toiler in a filthy disease-breeding shop should scrape together fifty cents and attend the electrical exposition now open," the writer began.

He then proceeds, "To visit the exposition is an education. It is as good as hearing a Socialist speaker. It is the best argument for socialism and one of the greatest condemnations of the present form of industry, with its ruthless slaughter of men, women and children, in shops and factories, in mines and sweatshops."



While we may not be able to see electricity as forming a "condemnation of the present system of society," as did this writer, still his point of view is worth quoting. The electric laundry certainly does mean the release of many aching backs and toiling hands; the vacuum cleaner will do away with much exhausting labor and take the dust from the home, whether palace or tenement; and so on through the entire list.





*By Permission of Franz Hanfstaengl*

Old City Hall and Marien Platz, Munich. After an Original Etching by Luigi Kasimir

# The Electrical Exposition of 1911

THE opening of the 1911 Electrical Exposition at the New Grand Central Palace on October 11th was notable for the presentation of a cubic foot of copper to

Edison with the four hundred and eighty-six pound copper cube. One inscription on it reads: "Presented to Thomas A Edison by American producers and consumers of copper in



Thomas A Edison and the Cubic Foot of Copper which was Presented Him by the Copper Interests of the Country

Thomas A Edison by the copper interests of the United States. Dr Charles Kirchoff, President of the American Institute of Mining Engineers, representing on this occasion the copper industry, presented Mr

recognition of his stimulation, by various inventions in telegraphy, telephony, electric lighting, electric railway, etc, of the copper industry."

Another inscription conveys the information that at the time of Mr

## The Edison Monthly

Edison's first invention, October 13th, 1868, the output of copper was 877,664,000 pounds, while on October 13th, 1910, the amount purchased was 1,910,608,000 pounds. On two other sides are engraved the names of the donators of the gift—the producers and consumers of copper.

Mr Edison was the guest of honor at the opening luncheon given by

the first central station was established. "At present," said Mr Lieb, "the central stations in the country number approximately 6,000 with an aggregate capacity of seven billion horse-power, while their annual revenue is three hundred million dollars."

Mr George B Cortelyou, President of the Consolidated Gas Company, paid a tribute to Mr Edison and the



View of the Stairway and Central Portion of the New Grand Central Palace During the Electrical Exposition. Taken from the Gallery Above the Main Entrance

The New York Edison Company at the Palace. The toastmaster, Mr John W Lieb, Jr, Vice-President of The New York Edison Company, in his opening remarks referred to Mr Edison as "the master mind of applied electricity." Mr Lieb mentioned the enormous growth of the electrical industry since 1882, when

men who have done things in electricity. On the question of labor Mr Cortelyou said that the time was coming when the "employee would be treated fairly, not from the standpoint of charity, but because of his rights." Dr Charles Kirchoff made the presentation speech and exhibited a piece of the first electric cable laid by Mr



Edison, which was in Menlo Park, whereupon Mr F L Dyer replied for Mr Edison.

After the luncheon the guests adjourned to the lower floors to see the Exposition itself. It was a-blaze with light. Besides the myriad bulbs of the building itself, countless lights flashed from the various booths and were reflected from the white walls and

## General Exhibitors

By means of models and photographs, the *Consolidated Telegraph and Electrical Subway Company* showed the construction of underground electric conduits, making a special feature of the network of conduits that lead from the Water-side Generating Station.



Interior View of the Palace, Showing the Booths of Some of the Most Prominent Companies Making Displays

ornamented columns. The total amount of the illumination was approximately 200,000 candle-power, more than was ever used in an exhibition building in the history of illumination. The lighting was designed and carried out by the Bureau of Illuminating Engineering of The New York Edison Company.

*Crane and Company* of Chicago showed a stock of valves, including an emergency cut-off valve operated by compressed air, which acts automatically, shutting off any line of pipe, or boilers, when a break occurs.

The *Duntley Manufacturing Company* exhibited a vacuum cleaner and an air washer and purifier.





The Booth of the Queens Electric Light and Power Company

The *Edison Storage Battery Company* showed storage batteries for central station service, for motor boat and automobile ignition and for railway car lighting.

The *Electric Controller and Manufacturing Company* demonstrated their device for the automatic control of pumps, using two large tanks, transferring the water between them.

The *Electric Storage Battery Company of Philadelphia* demonstrated batteries for all purposes where it is necessary to have a reserve supply of current.

The *Electrical Testing Laboratories* demonstrated the manner in which paper is tested to determine its various strengths.

The *Eureka Vibrator Company*

showed small motors in connection with their display of hair dryers and vibrators.

The *Gould Storage Battery Company* showed the various types of batteries manufactured at their plant.

*Gudeman and Company* showed decorating novelties, electroliers, lampshades and other artistic devices.

The *Habirshaw Wire Company* displayed samples of their rubber insulated wires and heavy conduit cables.

The *Haskins Glass Company* showed high-tension insulators in connection with its exhibit of reflectors and globes.

Electric cooking ranges, heating de-



The Cubic Foot of Copper in its Glass Case with a View of Another Booth of The New York Edison Company

vices and toasters were demonstrated by the *Hughes Electric Heating Company*.

The *Hurley Manufacturing Company* showed a line of Thor Electric Washing Machines for domestic and laundry service.

The *Kinetic Engineering Company*, manufacturers of blowers for organs or player pianos, demonstrated the

The *Monarch Vacuum Cleaner Company* demonstrated their lightweight cleaner, designed for household uses.

The *Multiple Unit Company*, manufacturers of the replaceable unit system of heating, demonstrated their various types of electric heaters. By this method, which provides a heating surface made up of



One of The New York Edison Company's Booths, Extending Along the Lexington Avenue Side of the Building

operation of their fan attachment.

The *Jefferson Glass Company* exhibited its Luceo Reflectors and showed a method of indirect lighting.

The *MacBeth-Evans Company*, in displaying their artistic glass ware, arranged their booth after the fashion of an ancient Greek Temple, glass panels being set in the ceilings, from which also were suspended different types of electroliers.

several independent parts, the user is able to replace any burned-out section, without being deprived of the use of the heater.

A cluster of six 500-watt lamps was the striking feature of the exhibit of the *National Electric Lamp Association*. This cluster was suspended over the center of the exhibit and attracted great attention.

Samples of shoe polish, made

## The Edison Monthly

up the exhibit of the *Nugget Shoe Polish Company*.

The *Otis Elevator Company* demonstrated electric elevators, operating a diminutive passenger car in a forty-foot shaft. In addition to this, tools and lubricants for the proper maintenance of an elevator were shown.

The *Pyrine Company* had on view an exhibit demonstrating the effectiveness of its secret extinguishing

The *Shelton Electric Company* demonstrated an assortment of vibrators and hair driers for use in the home or for professional purposes; they also showed electro-medical devices.

The *St John Corporation* demonstrated various types of low voltage transformers for bell ringing, and exhibited lamp watt-meters and testing sets for central stations.

*J J Waldman* presented an immer-



This Exhibit was Prepared by the Coast Defence and Shows a Model Harbor Strategically Mined. The Warship, Sailing Back and Forth, Comes in Contact with a Mine and is Blown Up

compound. Several of their "guns" were borrowed as additional protection throughout the building.

The *Rider-Ericsson Company* demonstrated their various makes of pumps for water supply and wells.

*Shapiro and Aronson*, in connection with their exhibit of fixtures for home and office use, had on view a shock absorber for attachment with tungsten lamp installations.

sion coil for heating water. Wired flowers for table decoration and other electrical specialties were included in the exhibit.

The *Watson-Stilman Company* showed pumps for apartment house and loft-building installation.

The *Westinghouse Company* exhibited an assortment of direct-current motors with various forms of control apparatus, several types of



meters, insulating materials, tungsten lamps and household devices.

*Roger Williams* displayed a line of heating devices, which included cook stoves, flatirons and other household appliances.

A method of storing air by means of high pressure blowers was demonstrated by the *L J Wing Manufacturing Company*. Air so stored was for use where a blue flame was desired and for other applications of compressed air.

tion of electricity to their activities.

The department in which electricity figures the most extensively is the Navy. The exhibit of the Navy Department at the Exposition was extremely interesting. For the most part it was prepared by the students of the Electrical Class at the Brooklyn Navy Yard.

A complete navy wireless station was established and put into commission through the authorities in Washington. The apparatus was one of



An Exact Duplicate in Miniature of the *North Dakota*, One Feature of the Government Exhibit Sent from Washington for The New York Edison Company's Display in The Electrical Exposition

### Government Exhibit

It is a European custom for the government to subsidize certain trade and industrial expositions as a part of the programme of public education. Such emphatic action is not considered either necessary or desirable here, but recognition of the educational possibilities of an electrical exposition was embodied in the presence of exhibits from several branches of the government, showing the rela-

tion of electricity to their activities. The best in the possession of the Navy Department and similar in type to those in use on some of our battleships, being sufficiently strong to communicate with points as far distant as Philadelphia and Boston. In the wireless code it was given the letters N E C.

This station was a center of interest during the Exposition and was visited and favorably commented on by Mr Thomas A Edison. There were also three panel-boards built by



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the students of the electrical class, showing the various types of lights, signals, and bells, used on board a battleship, together with a set of Ardois lights and keyboard.

The Commissary Department of the Navy sent an excellent exhibit, showing how rations are prepared for the sailors. There were dough-mixers and cutters, operated by elec-

blown up at intervals by the explosion of a submarine mine—a very spectacular sight.

An exhibit of special interest to the consumer of electric current was that of the National Bureau of Standards, illustrating the attention given by the government to the matter of the unit in terms of which electrical quantities are measured and the ac-



Another Part of The New York Edison Company's Display. In this "Print Shop" a Little Newspaper was Written, Set Up, Printed, Folded and Distributed over the Building Twice a Day

tricity, as well as electrical ranges and many other culinary devices. This exhibit represented the galley and mess-room of a battleship.

The Army was represented by an exhibit from the Coast Artillery, consisting of a model harbor, showing submarine mines and shore fortifications. A model battleship floated about on this toy harbor and was

curacy with which such measures can be made. This work includes the testing of all types of commercial electrical measuring instruments, for both direct and alternating current.

The Department of Agriculture displayed an apparatus devised by Dr H H Bunzel, of the Bureau of Plant Industry, for making an exact measurement of the oxidation activities in

plants. It consisted of a large case, in which were contained the necessary devices for keeping under perfect control the factors of temperature and gas or air pressure.

The National Museum, under the management of the Smithsonian Institution, provided duplicate models and photographs of the most impor-

that were shown at the Exposition.

Among the models were the Page Electric Motor, dating back to 1850, invented by Charles Grafton Page; a model of the reciprocating electromagnetic apparatus devised and used by Joseph Henry in 1831, together with the electro-magnet of that same year, generally known as the Yale



**In This Booth was Demonstrated in an Interesting Manner the Use of Electric Arc Lights in Making Negatives for Half-Tone Engraving**

tant of the early electrical inventions in their possession. Owing to the number of years since these originals were constructed by their famous inventors, they are now too fragile to be moved so that replicas of some of the most noted pieces have been constructed at the order of the Museum. These duplicates are the ones

instrument, since it was made by Henry for Yale University; likewise, Henry's electro-magnetic signaling apparatus, devised by the inventor, and also used by him in 1831 at Albany, New York, to send signals through one mile of wire.

The Wallace Electric Light Dynamo was shown. The original was

built by William Wallace in the summer of 1873. The armature is of the Gramme type and is said to be the first Gramme armature wound in this country. The machine was originally a magneto, the field being charged by batteries; but in 1874 the self-charging principles of the dynamo were discovered by Mr Wallace and independently by another inventor, and put in practice in this machine. This is believed to be the first machine ever thus operated and was exhibited at the Franklin Institute Fair in Philadelphia during 1884 and at the World's Fair, Chicago, 1893. A model of the Wallace arc-lamp was also on view.

Another of the Museum's treasures is the Morse telegraph register and port rule, dated 1837. This is the first electro-magnetic receiving telegraph instrument. The original recorded the Morse signals in zigzag lines on paper drawn under the pencil by clockwork. It can be placed on any Morse telegraph line used to receive messages by sound. Made by S F B Morse himself, it was first exhibited in New York on September 2, 1837.

## Industrial Division

People thoroughly conversant with the electrical business do not need to be told what electricity has done



The Illuminating Engineering Booth: Part of The New York Edison Company's Exhibit

and is doing to better trade methods and improve work-shop conditions. The stock phrases used to advocate the introduction of electric power—absence of shafting and belting, direct control, lessening of vibration and dust—make it an old story for the electrical solicitor.

But the general public has no such opportunity to learn what has been going on in the factories and shops of this country in the last ten or a dozen years. To give this information to the people of New York was the object of the industrial exhibits section of the Electrical Exposition provided by The New York Edison Company. Here were shown fifty or more trades in which electric current plays an important part, the particular applications being demonstrated in working exhibits, so that actual operations were presented.

At the same time there should not be forgotten that most recent utilization of electrical power for business

purposes, namely, the substituting of electrically driven calculating machines of different types for the old tedious method of adding column upon column of figures or whatever the mathematical process might be. Under this same category go the machines which address envelopes, make manifold copies,

wrap coins, and perform those other interminable monotonies of commercial necessity.

One of the exhibits was given over to a demonstration of what electricity is doing in the draughting room. A contrivance, which entirely eliminates the mechanical and laborious task of tracing, was shown in operation. As one man in every three in a draughting room does nothing but tracing, wherever this machine is used the one man in every three ceases his drudgery and takes up a higher and more congenial grade of work. This also means an increased output. Blueprinting by the most modern methods was demonstrated and in every case electricity was the main factor in the process.

The chief exhibit of The New York Edison Company was a print shop, where a daily newspaper was published. This little sheet, known as "The Daily Wireless," was conducted on a news basis. At one end of the booth was the wireless receiving station of the New York *World* and



Full Sized Cross-section Model of the Manhole and Subway Used by the Consolidated Telegraph and Electrical Subway Company, Showing Position and Treatment of Light and Power Cables in this City

news was also received there from the United States Navy Wireless Station. The material was prepared by an editorial staff and two editions of the paper were published every day, giving the latest baseball returns of the world series, and in the final edition the complete story of the game.

The actual printing of the paper was an excellent demonstration of motor drive as applied to this kind of work. In the limited space allotted to the print-shop belting and shafting would have been ridiculously impossible. So each of the six machines in the booth was run by an individual motor and there was room to spare. Cleanliness and safety were very evident throughout. The equipment consisted of a linotype, two printing presses, a folding machine, a stitcher, and a cutter.

Among other things in the industrial department of the Exposition were two sewing machine exhibits. In one of these was a device which did beautiful silk embroidery. In an-



other was a sewing machine run by the breeze from an electric fan.

A concern manufacturing office appliances exhibited an electrically operated copier, turning out copies at a speed of thirty a minute. The latest applications of electricity to medical and surgical use were shown. In this class was apparatus for mechanical gymnastics; also electrically heated local baths and bath cabinets. The complete process of manufacturing vacuum bottles was one of the very interesting exhibits.

#### BAKING

A line of sifting, mixing and grinding machines for large baking establishments was shown. Chief among them were a bread mixer and a combined cake mixer and egg or cream beater exhibited by the J H Day Company.

#### BLUE PRINTING AND DRAFTING

By combining their exhibits, Topping Brothers, sellers of the Mechanigraph, and the Revolute Machine Company, showed how blue prints were made from the architect's original drawing.

#### CONFECTIONERS

By means of a small model the manufacturing of cocoa, and the several processes through which the beans pass before being ready for the market, was shown by Huylers.

Runkel Brothers not only showed the machinery with which they grind the cocoa bean, but demonstrated the operation by which their cakes of sweet chocolate are wrapped for retail customers.

Park and Tilford used a large-size box, which opened and closed automatically, to display their wares as they are sold over the counter. In-

side the box was a picture on glass of the top layer of chocolates.

The American Chicle Company demonstrated the machinery which cuts, wraps and packs chewing gum.

#### EMBROIDERING

An interesting demonstration of a machine for reproducing embroidery was made by the Singer Sewing Machine Company in connection with their exhibit of machines for factory and home use.

#### ENGRAVING

Photo-engraving, by the aid of electricity, was demonstrated by the Sterling Engraving Company.

#### FOOD STUFFS

The preparation of beef bouillon cubes and clam bouillon extract for table use was shown by the E S Burnham Company, while the Beech Nut Packing Company showed how their food products were packed and sealed. Coffee roasting was demonstrated by Edward D Depew and Company.

#### MEDICAL DEVICES

The application of electricity to medical appliances was demonstrated by the Kny-Scheerer Company and the Campbell Electric Company.

#### NEWS SERVICE

A news service, stock reports and baseball scores as well as news from all over the country coming in over their tickers, was maintained by the Stock Quotation Telegraph Company.

#### OFFICE SUPPLIES

The application of electric current to the manufacture of envelopes was presented by the C and M Envelope Company, while the Cushman and the Denison Manufacturing Company showed the machines for making paper fasteners.



Exterior of the New Grand Central Palace on a Rainy Night During the Exposition. The Many Varied Exhibits Occupied the First Three Floors of the Building



Electrical Exposition Views—the United Company's Booth: Entrance Foyer

A number of rapid calculating machines, among them the Ensign, the Millionaire and the Elliott Fisher Book-typewriter were on view.

Among the rapid and multi-copying devices were the Flexotype, the Roneo Copier, and the Printograph, while the addressing machines represented were the Addressograph and the Meacham Addressing Machine.

Other office appliances were an automatic coin wrapping machine, the Dictaphone, a device for canceling checks and sealing bonds, and the Tel-autograph. The L K Waterman Company manufactured fountain pen barrels, while the Edison business phonograph and the Commercial Utilities Company's time clocks were displayed. The Condon Autostop Company exhibited an attachment for disc talking machines, which automatically stops the machine when the record is finished.

## OILS

Oils, greases and other lubricants were exhibited by the Standard Oil Company.

## SEWING

The New Home Sewing Machine Company demonstrated the application of electric motors used for the

operation of their sewing machines.

## SCHOOLS

The New York Electrical Trade School, by means of charts and diagrams explained the course of instruction. They also exhibited the instrument for transmitting photographs by wire.

Dr R H Reichau exhibited a



This Exhibit Consisted of a Model Showing Distribution of High-tension Feeders from the "Waterside" Station of The New York Edison Company

method of electrical study whereby the student has the benefit of personal experiment instead of watching the demonstration of a professor.

## THE TOBACCO TRADE

The smallest cigarette factory in the world was maintained here by the Philip Morris Company. Thirty



thousand cigarettes a day were turned out by their machines, the whole demonstration being under the supervision of the Internal Revenue Department.

#### VACUUM WARE

The manufacture of vacuum bottles, from the blowing of the glass to the silver plating of the container, was of greatest interest.

This exhibit was made by the Janus Vacuum Goods Company.

### Electric Vehicle Section

Electric vehicles are generally at a great disadvantage at the ordinary automobile show. They are apt to be shoved to the rear both literally

and figuratively. But for once, the electric car was given an opportunity to speak for itself. Not only were the vehicles displayed as usual—with the other exhibits—but the third floor was given over entirely to them, providing a demonstrating track, together with charging stations of different types.

One of the most novel events ever held in the history of the automobile took place on Friday evening, October 20th, when the Electric Automobile Dealers' Association of New York held an indoor electric automobile gymkhana over the ten-lap course on the third floor of the big building.

One event of the evening was a



Another Part of the Industrial Exhibit. The Singer Sewing Machine Company's Display, Where Six Embroidery Machines were Simultaneously Operated by Electricity from a Master Machine



Exhibit of the Navy Commissary, Showing Methods of Cooking by Electricity on Board of a Battleship. Loaned by the Government to The New York Edison Company



**A Portion of the Industrial Exhibits on the Second Floor. The Printograph and the Cushman Exhibits in the Foreground**

potato race, with the cars competing in divisions according to their body construction. Six small tables were arranged along the course, each table bearing three potatoes. The driver of each car was furnished with a spoon, and instructed that the potatoes were to be lifted from the tables with that implement. Each car circled the course three times, taking one potato from each table each round.

In the class for open body cars Mr P W Brakeley, in a Baker Electric Victoria, collected the necessary eighteen potatoes in five minutes forty-seven and four-fifths seconds. Mr Donald McLain, also driving a Baker Victoria, was second in this division, his time being six minutes three and two-fifths seconds.

A Baker Electric fore-door touring car, with Mr Harry

Dietrich at the wheel and five ladies occupying the tonneau, won in its division in the remarkable time of six minutes nine and one-fifth seconds.

It was emphatically demonstrated how easily and readily an electric car answers a lady's controlling hand,

when Mrs C Y Kenworthy, in a Rauch and Lang Electric coupe, completed the three circuits of the course in five minutes and twenty-two seconds. Mrs Kenworthy had to open and close the door of her car every time she stopped at a table where the potatoes were deposited, and to offset this handicap she was not required to gather the potatoes with a spoon.

Mr F P Ayres, in a General Vehicle Company's delivery wagon, drew attention to the merits of the electric



**A Demonstration Among the Industrial Exhibits Showing the Uses of Electricity in the Making of Vacuum Bottles**





Electric Vehicles Running Around the Demonstrating Track on the Third Floor. One of the Innovations of this Year's Electrical Exposition

car for short stops and quick delivery when he won in his class, and established the fastest time for the event, five minutes, nine and two-fifths seconds.

An obstacle race and several other events were successfully run off, each of them demonstrating decisively the ease with which electric cars may be absolutely controlled.

An incident, not on the programme, but which impressed the several thousand persons looking on, occurred when Mr C V Kenworthy, who was driving his Rauch and Lang car at a fairly good clip, brought it to a complete stop within a few feet of a venturesome small boy who had slipped and fallen directly in front of the machine as he was crossing the track.

Another interesting feature of the ten days' demonstration of electric cars was the arrangement with car exhibitors whereby ladies were given lessons in operating. A great number of ladies availed themselves of this attractive offer, and were surprised and delighted to find

themselves driving and controlling cars after but a few turns around the track with an instructor. Baker, Detroit, Rauch and Lang, and Studebaker cars were loaned for this purpose.

This is the first time conditions have ever permitted the actual operation of cars inside of an insured building. It was possible because electric vehicles do not come under the ban of the Fire Underwriters. This peculiar advantage should mark a new epoch in the selling of electric vehicles.

*The Waverley Electric Vehicle Company* exhibited a five-passenger limousine car in which are incorporated several innovations in automobile construction and design. In their pleasure car exhibit there was also a brougham, with an interior length of sixty-six inches, insuring plenty of knee room for the four passengers. In the commercial vehicle exhibit was a shaft-driven car for light deliveries, another type car for medium weight work and a three-and-a-half-ton truck.

The Studebaker Company had on display both electric commercial and pleasure vehicles. One of the interesting features was a five-ton brewery truck, this being one of sixteen in the service of the Ehret Brewing Company. There was also shown a neat little four-passenger coupe equipped with Exide battery and a Studebaker Victoria.

The Rauch and Lang Carriage Company, of Cleveland, exhibited a large extension coupe shaft, trimmed in blue fancy Bedford, while on the third floor a Victoria was used for demonstrating purposes. The motors, the control and the transmissions were of particular interest to electricians. The entire car, even to the cutting and grinding of the gears, was built at the Rauch and Lang plant.

The General Vehicle Company.—In the exhibit of the General Vehicle Company were a 2,000-pound standard express type body wagon and a

700-pound standard wagon. They also showed a General Electric Rectifier of the commercial vehicle type.

S R Bailey and Company, of Amesbury, Massachusetts, exhibited an electric Victoria Phaeton and a new roadster. Both cars were equipped with an Edison storage battery.

The Anderson Electric Car Company showed its improved type of pleasure car and the standard commercial vehicle chassis. Among the improvements in the 1912 models are the more comfortable aluminum bodies, positive controller brake, acting directly on the rear wheels and the long, flexible, easy springs.

Baker Motor Vehicle Company.—In the exhibit of the Baker Company were seen a special Extension Coupe and a heavy commercial truck. During the exposition the Baker Company closed an order with the American Express Company for fifty cars and with the St Paul Bread Company for twenty.



Further Industrial Exhibits. The Central Office of the Stock Quotation Telegraph Company is in the Foreground. From Here News of All Baseball and Football Games in Progress Was Sent Over the Building as the Plays Were Made





The Otis Elevator Exhibit on the First Floor of the Exposition. A Model Car in a Forty-foot Shaft Demonstrating the Safe Operation of an Electric Elevator. The Picture Gives a Good Idea of the Beauty of Arrangement and Illumination Throughout the Vast Building. In the Distance May be Seen a Portion of the Mezzanine Floor

### Repairing Shoes by Electricity

**C**OBBLER stick to thy last." This old proverb might well be amplified to include the lathe, for in this day of development the electric lathe is an important adjunct in every shoe-repairing establishment.

It is hardly probable the last will ever be displaced for, on this important piece of equipment, the shoe receives its shape and style. It has always been so in the past, just as in the past a broken bit of glass and a scrap of sandpaper were used to trim the edge of the sole after it had been laboriously stitched on by hand.

With the electric shoe repairer, a machine manufactured by the Landis Machine Company of St. Louis, the tiresome hand labor is done away with. Electricity operates the machine that stitches the sole to the upper; electricity turns the emery wheels that cut down the edge of the sole and trim it to the desired shape, and last of all electricity operates the wheels that rub the polish on the finished job.

These operations are all done on the one machine, each part though being independent of the other.

In the establishment of Myer Montrach, at 386 Third Avenue, a two-horse-power motor operates this machine at a minimum cost. Not only is the work turned out more rapidly, but the appearance of the machine in the shop lends an air of progressiveness which attracts many customers.

The extent to which machinery is coming to be employed in this, one of the most primitive of industries, is little realized. With the introduction of the machine here described the shoemaker will doubtless come more than ever to adopt the methods of the times.



At the Far End of the Lathe is the Electric Stitching Machine, then Comes the Cutters for Trimming Sole Leather, the Emery Wheels for Finishing and Finally, the Brushes for Polishing

## Electricity in Sculpture

**M**ANY years ago a sculptor named Joseph Piccirilli had his studio in the city of Rome and made statues that still adorn many buildings in the "Eternal City." He had six sons who learned the rudiments of the plastic art under his

That was nearly a quarter of a century ago and the studios of the Piccirilli Brothers are still there. Like the neighborhood, they have grown and expanded. The brothers are now reputed the leading sculptors of America and the truth of this is manifest in their excellent work.



**Figure of Peasant Woman Which will be Placed on One Side of the Shield of New York State Above the Doorway of the Immigrants' Savings Bank. The Small Duplicate Figure is a One-half-size Model**

careful teaching and continued their education in the best schools on the continent. The sons are Horace, Thomas, Furio, Attilio, Furuccio and Getulio.

They determined, after completing their studies, to seek their fortunes in "the land of the free." So, in 1887, they came to New York and established their studio among the meadows and gardens of what is now 142d Street, with its solid rows of flats.

Huge shapeless masses of marble now lie in the studio which, before a year has elapsed, will form the great National Maine Monument, to be erected at the Columbus Circle entrance of Central Park. The making of this monument is, perhaps, the most honored commission any sculptor in America has received in recent years and was gained by them in open competition. Then there is the Firemen's Memorial Monument, which will adorn Riverside Drive at 110th

Street and now exists only in the minds of its creators except for a rude partly built wooden model in the Piccirilli studios. This beautiful example of modern art, when assembled, will be oblong in shape, with a group of figures at either end and figures in bas-relief on the sides.

Some of the leading examples of the work completed by the Piccirilli Brothers in the past are the forty figures on the Brooklyn Museum,

the Morgan Library in Thirty-sixth Street between Fourth and Madison Avenues, the lions on the new Public Library at Forty-second Street and Fifth Avenue, the statues on the Stock Exchange, Chamber of Commerce, Custom House and Appellate Division of the Supreme Court.

The studio of the elder Piccirilli

longed task, because it had to be done by hand. Roughing out is the first thing done to a block of marble when it is placed inside of the studio. The model of the statue into which the block is to be chiseled is set beside it and the superfluous corners and other portions of the marble which will not enter into the making of the statue are "roughed out."

This is now done by means of drills which pulsate at a very rapid rate, the compressed air which operates them being best produced by electricity. This agency, through which the work of seven days can be done in one, is perhaps the most valuable asset of the modern sculptor's studio. A row of small holes are drilled several inches deep where the split is desired. Wedges are then inserted and driven in by hand until the piece drops off. Formerly the drilling had to be done by hand and required many days.

Another process which was revolutionized by electricity and compressed air is termed "finishing." Finishing is really nothing more than reducing the surface of a statue from a chiseled-out state to a smooth one, all ready to receive the polish. The rapidly pulsating electric-compressed-air tool is admirably fitted for this work, giving a variety of finishes not obtainable by hand and doing ap-



Shield of New York State Chiseled in Marble at the Studios of the Piccirilli Brothers, 467 East 142d Street. It is to be Placed Above the Doorway of the Immigrants' Savings Bank, Chambers Street. In the Background is a Small Model of Mr J Pierpont Morgan's Library. The Sculptor is Using an Electrical Finishing Tool

in Rome embodied all of the perfection of the antique school of sculpture,—all that was to be learned from the wonders wrought by a Michael Angelo. Still there was one deficiency, a lack common to all studios of the time.

In the days of Piccirilli, pere, the process termed by sculptors "roughing out" was a laborious and pro-



proximately a week's work in one day.

The compressed-air process, as applied to sculpture, has been known for about eighteen years. It is possible to compress the air by other means than electricity, but not nearly as good results can be secured, and more or less trouble is always found with the plant.

The Piccirilli Brothers have had their electrically operated system for seven years and but few repairs of any kind have been necessary. There are two tanks of compressed air, in one of which a pressure of one hundred pounds is maintained. This is for the roughing-out work and gives two hundred pulsations to the minute in the drills. The air in the other tank is kept under twenty-five pounds pressure and gives the finishing chisels ninety beats to the minute. There are in all sixty-four outlets. A thirty-five horse-power motor supplies the power.

Some kinds of marble are so hard that nothing but compressed-air drills and chisels with their rapid pulsations will make any impression on their hard surfaces. Before the advent of this method they were unworked. Formosa marble, which comes from Japan, is one. The Piccirilli Brothers have recently completed a splendid memorial in this marble, to be placed in the Connecticut Capitol at Hartford in honor of a deceased soldier and governor, Joseph Roswell Hawley.

With all of the power of the electric chisel, there still remains one marble which it

is beyond its power to cut—the African marble known as Porphore. The working of this stone is a lost art. What method and tools the ancient Romans employed in carving beautiful statuary from this hardest of minerals will probably never be known. At any rate fame awaits the sculptor who will unlock this mystery of past ages.

### An Efficient High-Pressure Blower

A NEED has long been felt in many lines of manufacture for high-pressure blowers. The uses to which such a device can be put are innumerable and important and their peculiar function cannot be as successfully performed by any other contrivance. For some particular kinds of work in this line an air compressor might ordinarily be employed, but not as economically, however, as a high efficiency blower which will effect a saving in power



Centrifugal Pressure Blower

and maintenance cost as well as eliminating about fifty per cent of the initial cost.

The American Blower Company has recently developed a special centrifugal pressure blower, called the Sirocco, which is admirably adapted for all service where a blower can be used. It is designed for pressures up to twenty-four ounces per square inch and still is applicable for direct connection to standard speed electric motors.

The blowing of scale from dies can usually be accomplished with an air pressure of from twelve to fourteen ounces per square inch, but in the motor-car industry for example, where a large proportion of the work is on deep-cut dies, a considerably higher pressure must, of necessity, be maintained.

Such a scale blowing rig for deep die work has lately been installed by the Packard Motor Car Company, Detroit. The blower has a wheel eighty-two inches in diameter, direct connected by means of a flexible strap coupling to a fifty-horse-power direct-current motor, which operates a trifle under full load with all the nozzles and deflecting pipes in service. The blower maintains a pressure of twenty-two ounces over fifty-four three-quarter-inch diameter scale-blowing nozzles and twenty-four deflecting pipes having a free area of thirty-four square inches.

The velocity through these open-

ings is 24,000 feet, or more than four and a half miles per minute. Blowers of this type are also being successfully employed for furnishing blast to oil furnaces besides forge and cupola service.

The village blacksmith, pumping at a wheezy old bellows with one hand while with the other he pokes a horseshoe deeper in the bed of red coals, is a picture with which we are all familiar. But the smithy who sends the sparks flying up the chimney by pressing an electric button alongside of his anvil or forge is a sight not so commonly seen.



The Electric Forge Blower Which is Succeeding the Hand Bellows in the Modern Blacksmith Shop

Three sizes of electric forge blowers are made by the American Blower Company. They are but smaller adaptations of their larger brother, the Sirocco, and can be attached to any ordinary lighting socket and run by lighting current, requiring no special wiring. The main advantages of the electric forge blower are that it economizes space, because it is so small it can be placed under the forge out of the way, that it builds the fire quicker, and that it requires no pumping or other attention. While the iron is heating other work can be prepared or finished.

### Electrically Heated Pitch Kettles

UNTIL August of last year the Splitdorf Magneto Company, at Mott Avenue and 138th Street, used steam kettles to melt the pitch used for sealing their dry-batteries and magnetos. Then they changed the sealing mixture, using a composition requiring 375 degrees F to melt. Their steam kettles could furnish no better than 212 degrees, so they sought the aid of The New York Edison Company's Heating Bureau.

Arrangements were made with electric-heating device manufacturers and two nine-gallon kettles were built. The electric-heater attachment consumed 3,600 watts. So satisfactory did it prove that a smaller one, con-

suming 2,000 watts, was ordered for the San Francisco factory. The Bronx factory turns out 600 magnetos a day, and sometimes when the orders are behindhand the kettles are in operation twenty-four hours out of the twenty-four.

### Advertising Value of Electric Signs

TO reach the Southern or Western merchant by means of an advertisement shown in New York City, and to close a sale merely on the strength of that "ad" would seem at first consideration an almost impossible feat.

Yet it is no uncommon occurrence and manufacturers of staple products are coming to realize it more and more. Not infrequently the mail from their traveling representatives confirms this belief. A recent issue of *Printers' Ink* contained the following extract from a letter received by the Nonotuck Silk Company of Florence, Massachusetts, manufacturers of Corticelli Spool Silk:

"I called upon four dealers today, fairly large buyers. Three of them had no sooner learned whom I was representing than they said: 'Oh, yes. I saw your fine electric sign of the cat unwinding the spool and slowly tying itself all up in



Nine-Gallon Pitch Kettles, Electrically Heated, in the Bronx Factory of the Splitdorf Magneto Company, Turning out 600 Magnetos Daily, Sometimes Working the Kettles Twenty-four Hours on a Stretch

the thread. That is a dandy.' They can't keep themselves from speaking about this, for it shows that they have been to New York. That sign has made me quick friends all through my territory. Some, of course, have not seen it, but even these have occasionally heard about it. I have found it quite easy to do business, after they have become interested by seeing the sign."

The advertisement spoken of, is the electric sign, shown during the winter and spring months at Broadway and Forty-second Street. Seen there by the out-of-town buyer, he is impressed by its lifelike action, and the impression still remains after he has returned home. Later the traveling salesman calls, and finds he is not quite the stranger he thought he was going to be.

The wonderful electric signs along the Great White Way are rarely maintained in hope of coaxing the retail customer to spend his money; rather they are operated to arouse the interest of the dealer, when he makes his regular visit to the city.

The Corticelli sign is made up of 1,062 lamps; the chief letters are seven feet in height, and the kitten is thirty feet tall. It is one of the best-known signs on Broadway.

Kirke S Pickett, in an article "Reaching Dealers Nationally Through Broadway Signs," says:

"Broadway, as an advertising medium, is like no other street in the country. It is truly a national promenade. Everybody worth while in the trade and out comes to the Metropolis once in a while, at least once in a lifetime. He or she would never think of missing Broadway,



One of the most Famous and Successful of Electric Signs along Broadway

or fail to see the signs of which so much has been said. Linking its reputation to that of Broadway, every ad achieves a carrying power that territorially is remarkable.

"According to police records, between two and three hundred thousand people a day pass through the Great White Way. Of these, in the course of a season, thousands are buyers. In the men's wear trades, for example, at least ten thousand buyers come to town. These represent stores that have an unusually large distributing capacity and their eyes cannot help noting the electric signs of interest to their trade."



## Porto Rican Exhibit

**B**URNING hour after hour, alternately flashing and waning, as if to guide some night navigator to a safe port, a lighthouse stands near the junction of two of New York's busiest thoroughfares. It is

orations, which cover the three walls of the room, are characteristic of the island. They show the mountainous country, the cultivated fields and the well-kept highways, while the pictured palm and cocoanut trees

do not exaggerate in the least the tropical beauties of the country. The harbor of San Juan is shown in the background; at the harbor's mouth the fort with the lighthouse towering above. It blinks forth day and night, but it is particularly effective after the exhibit has been darkened.

In addition to these pictures, there is a display of the



View Looking Through the Show Window with Morro Castle in the Background. The Light in the Castle Tower Flashes Forth at all Hours of the Day and Night

a miniature reproduction of the light on the historic Morro Castle, at the entrance to San Juan harbor, Porto Rico, and is part of the exhibit maintained by the Insular Government at Fifth Avenue near Forty-second Street.

It is safe to say that no more realistic decorative or lighting effect is to be seen in the city than this Porto Rican exhibit. The dec-

products of the island; the fruits and tobaccos and the manufactured articles being shown, including native-made lace and embroideries. Everything displayed is under the government seals, guaranteeing its genuineness. A Bureau of Information is maintained, for the exhibit is to advertise the island, not only for commercial reasons, but to boom it as a pleasure and health resort.

The decoration was devised by Mortimer Remington, manager of the exhibit, and the work was done by Gates and Morange, the scenic artists. The interior lighting is from a row of lamps over the window. An electric sign, reading "Porto Rico," is on the building front.



**The Exhibit of the Island's Products and Handiwork is Displayed on all Sides. Much Attention is Being Attracted by the Exquisite Porto Rican Embroideries**

The present governor of the island, the Hon George R Colton, has succeeded to a remarkable degree not only in gaining the confidence of the Porto Ricans but in eliciting the interest of American business in the development of the island's resources

and industries. At no time since the American occupation have the prospects been as bright for the ready industrial modernizing of this insular territory. The Fifth Avenue Exhibit is an effective method of acquainting the American Public with Porto

Rico, both as a field for commercial and industrial development and as a thoroughly delightful winter resort. Neither the illustrated pamphlets presented to the visitor nor the elaborate decorations can convey an adequate idea of the picturesqueness of this West Indian possession.



**A Picture Showing the Method Employed to Create a Realistic Landscape Effect**



The Tent in Which the Vaudeville Entertainment and the Clambake were Held. The Decorations Consisted of Evergreens Intertwined with Hundreds of Lights

### Association of Edison Illuminating Societies Convention

THE twenty-seventh annual convention of the Association of Edison Illuminating Societies which occurred at Spring Lake Beach, N J, the 19th, 20th and 21st of September, was notable in many ways. The attendance, 350, was the

largest in the history of the Association. The President of the Institution of Electrical Engineers, Mr S Z de Ferranti of Sheffield was in attendance, together with several other men prominent in electrical science in England, while the Westinghouse Electric & Manufacturing Company was, for the first time, represented in several discussions.



The Hotel Monmouth in Which the Convention was Held

The plan of the Association for the promotion of free and open discussion was most successfully worked out. Convention sessions were held behind closed doors in the hotel ballroom and all matter issued for publication was first passed upon by the press committee. Discussions were all strictly excluded from this matter, thus doing away with reticence and the usual precaution on the part of speakers.

The New York Edison Company, and the "Thermal Application of Electricity," by Dr William Stanley of Schenectady. On Thursday evening Dr C P Steinmetz addressed the Convention on the nature of electrical energy and Mr Arthur Williams of The New York Edison Company spoke on industrial movements abroad.

The entertainment was thoroughly in keeping with the success of the



View Showing the Tent Interior Ready for the Clambake. The Steins were Designed Especially for the Occasion

These deliberations were participated in only by men eminent in the profession. Such has been the custom of the Association in years past. The various delegates were provided with printed papers. However, several papers of great importance were read from the manuscript. Included in this number was the "Report of the Committee on Incandescent Lamps," by Mr J W Lieb, Jr, of

Convention. Among other features a large tent was erected on the hotel grounds for a vaudeville entertainment and clambake.

The new president of the Association, Gen George H Harries, has been prominent in both the electric light and traction industries. Gen Harries is treasurer of the N E L A, and was vice-president of the Association of Edison Illuminating Companies.



## The Herald Square Building

**S**KY-SCRAPER office-buildings have become the accepted thing in Manhattan within the last decade. Now, however, there appears the giant loft-buildings. Hitherto, structures characteristic of this type have contented themselves with a modest height of from eight to twelve stories, but nearing completion this fall is the first loft building to be advertised as the "tallest in the world."

The Herald Square Building, occupying the lots at 141-3-5 West Thirty-sixth Street, seems to embody the last word in loft building construction and is the tallest structure of its kind ever erected. It is of ornate appearance but substantial construction and contains the most complete and modern equipment conceivable. Like a huge spectre it looms up in overwhelming contrast to the ancient four-story-and-basement brownstone fronts, relics of a by-gone aristocracy, which it stands between.

In the midst of these surroundings, this "tallest loft building" occupies a plot sixty by one hundred, excavated from the solid rock. It is of the most advanced type of steel skeleton frame-work, with massive stone, steel and concrete walls and piers. The floor arches are constructed in what is generally accepted as the strongest and most reliable fire-resisting form of reinforced concrete. Wood is almost completely eliminated from the building, as the floors and subbases are of well-fin-

ished concrete, while the doors, casings, window frames, et cetera, are of hollow steel, richly finished. The floors have a carrying capacity of 145 pounds per square foot instead of the usual 120 pounds.

Architecturally the Herald Square Building will be one of the handsomest in the city. The front is a free adaptation of the Gothic style, and is built of a fine quality of glistening snow-white terra-cotta and ornamental bronze. Three rows of bay windows run from the third floor to the top, a distance of three hundred feet. The building has more than a thousand windows, which will afford abundant light and air. The entrance hall and vestibule are finished with paneled Italian marble, while the floors are mosaic. All the front windows are double-thick plate glass, hung in fireproof frames with automatic self-closing devices, while all of the side and rear windows are heavy-wire plate glass. Owing to the height of the building there is, of course, excellent light on all sides.

All the doors open outward and the windows and elevator doors will close automatically in case of being subjected to undue heat. In addition to a large elevator, there are three high-speed overhead-traction passenger elevators of most scientific construction. There are two interior marble, brick and iron staircases besides an independent iron staircase in the rear. All the elevators and staircases are easily ac-

cessible from every portion of each floor, so that it would seem impossible to imagine a situation or emergency in which the occupants of the building could not find safe and rapid egress to the street.

The building is equipped on every floor with what is considered the best fire-sprinkling apparatus so far devised. Each floor will have retiring rooms equipped with all conveniences and fitted in marble mosaic and porcelain. The location, being just off Broadway, in the midst of the wholesale and retail trade, hotels and theatres, and near the Pennsylvania Station and the new Post Office on Eighth Avenue promises to justify this costly venture.

In lighting this tallest of loft-buildings more than 4,000 electric lights will be employed, while the power factor will amount to upwards of 400 horse. Nearly 200 horse-power was used in the construction of the building. The owner of the



**The Herald Square Building is the Tallest Structure of its Kind Ever Erected and is of the Latest Type of Loft-Building Construction**

structure is Edward West Browning, who is a son of the senior partner in the old clothing house of Browning, King and Company, and it represents an investment of his own private capital. The architects are Buchman and Fox. George Vassar's Son and Company are the building contractors, and the Superintendent of Construction is M A Hickey, an expert master mechanic.

### New Electric Washing Machine

**A** PATENT has recently been granted the inventor of a washing machine designed especially for use in stationary tubs. The machine, the patent for which was secured through Munn and Company, should prove a valuable appliance for small apartments as one of a rapidly increasing number of electrical space-saving devices. The field in New York City alone is practically unlimited.

The invention consists of two leaves

of perforated slats which are hinged along one side and which open and close like a book. Upon opening, the inrush of water serves to shift the position of the wash. The machine works at the rate of sixty dashes a minute and is operated by a one-eighth-horse-power motor.

### A Vacuum Cleaner Inducement

**T**HE neurological division of the Academy of Medicine was recently presented with the results of a series of experiments conducted for the purpose of demonstrating a theory regarding the spread of infantile paralysis. The experimenters stated their conviction that the virus lurks in the dust and enters the system through the naso-pharynx. Extensive experiments with mon-

keys have justified the belief. The discovery resulting from these experiments affords another strong inducement for the widespread use of the modern vacuum cleaner.



The Building is Faced with a Fine Quality of Snow White Terra-Cotta and Ornamental Bronze



Looking Down Broad Street Towards Wall and the Sub-Treasury

*Wm. H. H. H.*



## WIRING AND INSTALLATION CONTRACTORS

### West of Broadway and Fifth Avenue

Amsterdam Ave 648—H Blumstetter  
 Amsterdam Ave 650—J L Moriarty & Co  
 Broadway 335—Park Sullinger  
 Broadway 379—J S Bihin  
 Broadway 1170—The Chas L Eidlitz Co  
 Broadway 1269—S W Electric Co  
 Broadway 2270—A Ostrom Rowe  
 Broadway 2382—H S Beidleman  
 Broadway 2742—H Reinwald Jr  
 Church St 50—L K Comstock & Co  
 Columbus Ave 220—T F Carr  
 Columbus Ave 549—Hoffman & Elias  
 Columbus Ave 649—E Craske  
 Cortlandt St 26—Cleveland & Ryan  
 Cortlandt St 39—Berg & Co  
 Cortlandt St 39—Blackall & Baldwin  
 Cortlandt St 39—Electric Cons & Supply Co  
 Cortlandt St 84—Bleye Elec Co  
 Duane St 172—Jas F Hughes Co  
 Eighth Ave 2719—Franklin Elec Co  
 Fifth Ave 65—L A Whitney Elec Co  
 Fifth Ave 75—H M Walters  
 Fifth Ave 503—Flucker & Keedwell  
 Greenwich St 183—Thomas & Johnson  
 Greenwich St 207—F A Frey  
 Greenwich St 255—F C Ross  
 Hudson St 660—Edw S Eaton  
 Sixth Ave 110—J V Johnson  
 Sixth Ave 419—C A Pinkham  
 Sixth Ave 617—Zenker & Siems  
 Sixth Ave 780—C C Bohn Electric Co  
 Sixth Ave 943—John M Flint  
 Seventh Ave 192—Emil Christensen Inc  
 Seventh Ave 727—Conduit Wiring Co  
 Seventh Ave 2290—Nathan Zolinsky  
 Thames St 27—Watson Flagg Eng Co  
 Thames St 27—McLeod Ward & Co  
 Varick St 132—Eugene P Etzel  
 Warren St 73—J P Hall  
 Warren St 96—Wm F Duffy  
 West Broadway 578—M & S Electric Co  
 West St 116—Knickerbocker Electric Co  
 West St 463—Western Elec Co  
 West 14th St 130—The Electrical Contracting Co  
 West 17th St 156—Harry A Hanft  
 West 21st St 35—W J McClure & Co  
 West 26th St 54—Louis Freund  
 West 28th St 11—Thos L Dillon  
 West 30th St 110—Tucker Elec Con Co  
 West 31st St 109—Jandous Elec Equip Co  
 West 33d St 25—Harry Alexander  
 West 33d St 209—E J Elec Installation Co  
 West 34th St 45—Peet & Powers  
 West 38th St 39—Dennis G Brussel  
 West 38th St 72—A J Buschman Co  
 West 42d St 25—Russell Haynes Electrical Co  
 West 42d St 29—33—Germond & Turner  
 West 42d St 112—Oberg Blumberg & Bleyer  
 West 45th St 100—F A Bohling  
 West 49th St 422—Frank Pisch  
 West 72d St 176—T J Kaufman & Co  
 West 83d St 121—C A Christesen  
 West 90th St 146—John A Marcato Co  
 West 111th St 147—Mariposa Electric Co  
 West 116th St 227—Lewis S Davis  
 West 134th St 314—M Kohosoff  
 Wooster St 12—Durbrow & Hearne Mfg Co

### East of Broadway and Fifth Avenue

Beekman St 74—Jordan Bros Inc  
 Broome St 105—B H Weinberg  
 Canal St 237—N. Klein & Co  
 Cedar St 16—Wm Truswell & Son

Dover St 8—E W Hazazer  
 East 7th St 138—H A Schreiber  
 East 9th St 65—George D Beinert  
 East 9th St 51—B W Sandbach & Co  
 East 22d St 27—Hunt & Morgan  
 East 22d St 113—J Livingston & Co Inc  
 East 23d St 10—Ponst Elec Co  
 East 23d St 42—Kimball Elec Construc Co  
 East 23d St 145—Batemans & Miller  
 East 25th St 122—Isador Fajans  
 East 28th St 114—Burkart Elec Co  
 East 30th St 13—Geo H Shuman  
 East 33rd St 219—Joseph Waintrub  
 East 37th St 207—Reis & O'Donovan  
 East 42d St 39—Edwards Elec Con Co  
 East 42d St 45—L De Young  
 East 55th St 147—Morris Levi & Co  
 East 57th St 426—Behlert Elec Co  
 East 59th St 57—Stanley & Ruth  
 East 72d St 167—E J Dustman  
 East 77th St 426—Edw Zenker  
 East 88th St 176—M Strompf  
 East 125th St 13—L L Strauss  
 East 125th St 31—Leo S Stern  
 East 125th St 77—Peter Jansen  
 Fourth Ave 373—Hatzel & Buehler  
 Frankfort St 26—30—J F Bidstrup & Co  
 Fulton St 44—E Klein & Bro  
 Fulton St 96—98—Fulton Electric Co  
 Fulton St 227—Edward B Stott & Co  
 Fulton St 237—General Electric Inspection Co  
 Gold St 29—Mfrs & Inventors Elec Co  
 Great Jones St 38—Geo Weber & Bro  
 John St 84—Alfred Whiteley  
 Lexington Ave 1249—J E Woelfe  
 Liberty St 123—G Curt Kastner  
 Liberty St 126—S Arthur Brown  
 Madison Ave 314—Nimis & Nimis  
 Madison Ave 959—Kendelhardt & Morris  
 Madison Ave 1122—F W Cohn  
 Park Ave 103—Stehlin-Miller-Henes Co  
 Park Ave 1630—Guarantee Electric Co  
 Third Ave 221—Maurice Young  
 Third Ave 670—Silverman Bros  
 Third Ave 1021—E Kalkan  
 Walker St 84—M F Finkelstein  
 Wall St 2—Edwin C Gee  
 Wall St 99—Chas Davidson

### Bronx

Baker & Fox—313 E 141st St  
 Blackman & Guttman—226-28 East 144th St  
 Bogan Irving A—4192 Park Ave  
 Dwyer & Carey—926 East 167th St  
 Evans & Kaestner—893 Intervale Ave  
 Hinners F J Jr—585 East 135th St  
 Kips John—161st St and 3d Ave  
 Kirschoff C Arthur—813 East 163d St  
 Landy Jacob—673 Elton Ave  
 Mangam H I & Co—333 East 162d St  
 Ross E L—356 East 138th St  
 Ryan Geo E—603 Tremont Ave  
 Schwarzler M & Son—460 E 167th St  
 Sladek F—3440 Third Ave  
 Vielberth Jos F—1243 Taylor Ave  
 Woods Lewis H—2355 Jerome Ave

### Yonkers

Excelsior Gas & Elec Fixture Co—42 Warburton Ave  
 Imrie & Underhill—Bronxville N Y  
 Nugent A W Co Inc—83 Warburton Ave  
 Seaboard Elec Co—32 N Broadway  
 Westchester Elec Equip Co—34 N B'way

# *The Edison Monthly*

*December*

*1911*

## C O N T E N T S

VOLUME IV

NUMBER 7

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# ditorial

## The Edison Monthly

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On an appointed day and hour seven huge machines, which a few years ago represented the highest point of development in their class, one by one came to a stop. At the turn of a hand, the work of all seven was taken over by one new giant mechanism. This huge turbine carries the load of the seven it displaces, while it occupies the floor space of little more than one of them.

Such, in the briefest possible words, is the significance of the installation of the new turbine, the largest electric generator in the world, in the Waterside Station of this company. In mechanics, the old order changes still more rapidly than in the world of ideas. That which "today is, tomorrow is cast into the oven."

This element, technically known as "depreciation," is one of the important elements affecting the cost of superior electric service. Yet it is only by the use of the latest developments in machinery that the best results can be obtained, and the

standard of its service alone is the sure foundation of any central station. As it is said of other commodities, electricity is "quality goods."

From Philadelphia comes the story of the ingenious driver of an electric truck, who managed to keep cool during the Summer by placing an electric fan on the seat beside him, feeding it from the truck's batteries.

This only goes to prove the still greater adaptability of the electric vehicle and its power to provide comforts and conveniences hitherto impossible. Obviously, the next step is for some inventive person to arrange some sort of heating pad or coil under the seat to keep the truck driver warm in the Winter,—a further argument in favor of the electric which should win the approval of the workman, not to mention the kindly inclined majority of the general public.

Various member companies of the National Electric Light Association are following out in several ways the employees' welfare program suggested by the Public Policy Committee in its report to the Convention last June.

In relation to the recommendation that companies co-operate in the establishment of savings funds among employees, the Boston Edison Company is availing itself of a credit union, so-called, in connection with the Women's Electrical Industrial Union.

This Credit-Union seems to be an institution made available by the laws of the State of Massachusetts and possibly may not be permissible elsewhere. It is a combination of a savings and co-operative bank, the members holding shares as small as \$5, payable in ten-cent weekly installments. Such holding allows the member to borrow at very low rates of interest, real estate not being required as security.

Even at the low rate of interest charged, the credit-unions are frequently able to pay good dividends, and aside from this, members may also use them as savings banks, receiving the usual rate of interest on the money deposited, which may be withdrawn at any time.



It is entirely possible that such an institution may not be practicable outside of Massachusetts, where community legislation is somewhat more advanced than in many other States. However that may be, the plan is worth describing as showing the efforts on the part of the electrical industry to carry out the recommendations of the National Electric Light Association's Public Policy Committee.



The discussion of proper shop-room lighting in recent issues of both the *Electrical Review* of London and the American *Electrical World*, indicates a growing recognition of the practical importance of adequate illumination.

In certain European countries, it seems, there is legal enactment determining what is the standard amount of light to be provided in various trades, the governments of Holland and Switzerland taking the lead in this regard.



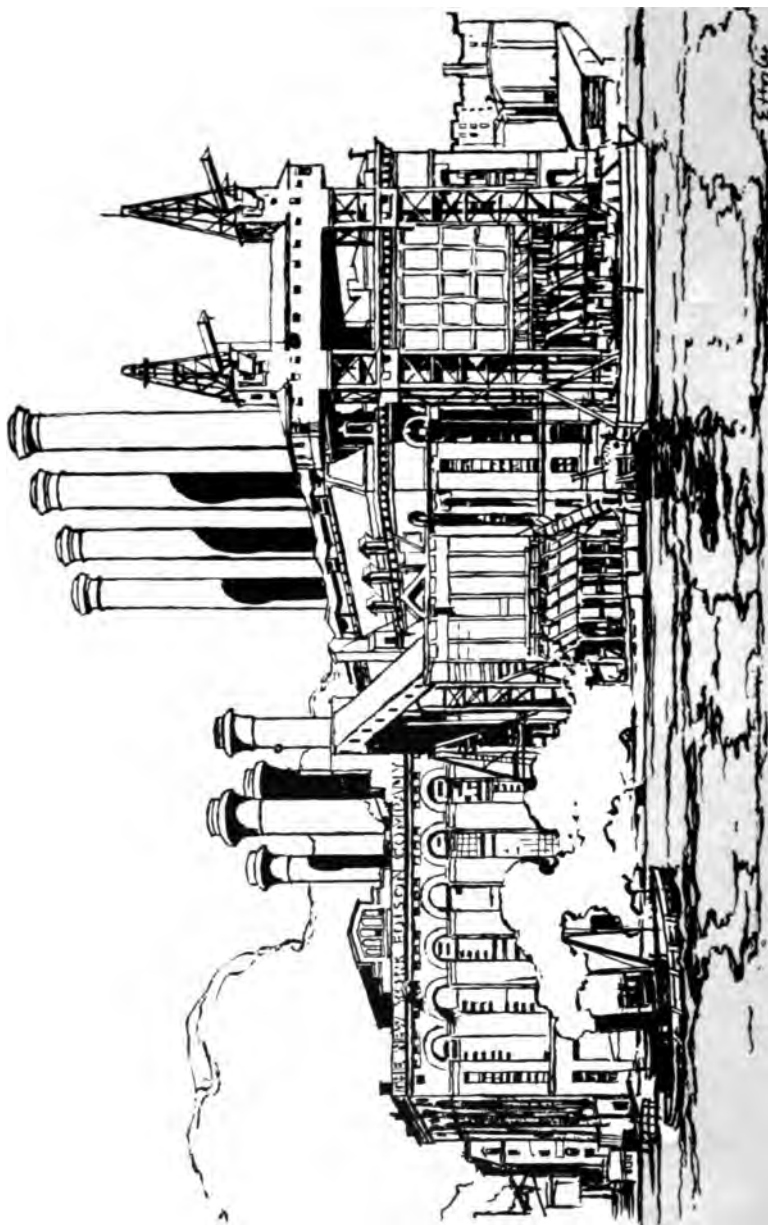
Even at this, the *Electrical World* points out, the Dutch specified minimum is so low that it can be met in a shop so badly lit as to prevent good work, while the Swiss system leaves the factory inspector practically arbiter of illumination.

In this country, it is stated, more progress is being reported in work-room lighting than any other branch of illuminating engineering. For pressure is brought not only by technical men but by manufacturers who have come to see the connection between good light and accurate work, while many interests have joined in the task of conserving human eyesight.



Strange as it may sound at first hearing, it is the owners of fairly well-lighted establishments who "reluctate to come forward," while managers whose premises are very badly off in this particular are far more easily won over. The explanation of this is but another version of the acute and chronic case. The disadvantages of thoroughly bad lighting are glaring, while the untoward results of merely mediocre illumination are more difficult to present.





The Watervale Station of The New York Edison Company Which Now Contains the Largest Electric Generator in the World

## The World's Largest Electric Generator

**N**EW YORK is the foremost city of the Western Hemisphere and, as such, it is only fitting that its electrical generating apparatus should set the standard for every other city in the "New World." This it does, and not only this, for "Waterside" leads all of the cities in the whole world in this particular. The third of November, 1911, will long remain a "red-letter day" in the history of The New York Edison Company, for on that date at 11:14 A M the most powerful machine in the world for the generating of electricity was started at the Waterside Station by Mr George B Cortelyou, formerly Secretary of the Treasury.

This mightiest of steam turbines is rated at thirty-thousand horse-power. In other words, its power is equal to that of a line of horses six abreast and ten miles long. Another comparison would be with the greatest leviathan afloat, and still another with thirty of the hugest express locomotives. Alone it could supply all the electric light for a chain of cities such as Albany, Syracuse and Utica. This single turbine could meet all of the demand for electric current of any city of about 250,000 population. The power of this single machine is something heretofore unheard of in the annals of central stations.

At this time it is interesting to go back something more than a quarter of a century to the starting of the Edison Pearl Street Station at three o'clock on the afternoon of September fourth, 1882, and to glance at

the generators which supplied New York City with its first electric light. There were sixteen of them, the primitive and picturesque old "Jumbos," weighing thirty tons each and capable of only 125 horse-power apiece. So the whole sixteen original machines could produce but 2,000 horse-power or one-fifteenth of the capacity of the one new steam turbine. These historic "Jumbos" supplied current to an underground system of less than fifteen miles of mains and feeders, occupying a territory from Wall Street to Spruce Street and from Nassau Street to the East River.

In contrast to this there are at the present time 1,114 miles of mains, feeders and cables in the underground system of The New York Edison Company. Through these is supplied current for almost the entire Island of Manhattan, having 21.093 square miles, and the Borough of the Bronx, having 40.65 square miles.

The starting of the new Waterside turbo-generator was most dramatically impressive. Opposite the new machine stood seven huge vertical engines, an older type of generating apparatus, working away with might and main. Suddenly the great whistle of the station tooted, and in response the first of the long line of vertical engines came slowly to a stop. Again the whistle sounded and the second engine was brought to a standstill. Then one by one at the signal of the whistle, the other vertical engines were stopped and their entire "load"



The Mammoth New 30,000 Horse-Power Generator at Waterside

transferred to the great turbine.

Simultaneously with the stopping of the first vertical engine, Mr Cortelyou grasped the polished steel wheel which lets the steam into the great throat of the turbine and swung it around. Suddenly from a state of idleness the grim monster leaped into roaring activity, assuming the whole work of the seven vertical engines as they were brought down to a dead stop. And several years ago these same vertical engines

represented the highest point in current production, but now comes a single machine in comparison with which the seven are merely toys. This turbine, it must also be remembered, takes up but slightly more floor space than one of the vertical engines it replaces.

The height of the new turbine is thirty-five and a half feet above the base. Its horizontal dimensions are seventeen and a half by seventeen feet, while it occupies an area of 297

square feet. Its total weight is 420 tons, while the heaviest part weighs 110 tons and the revolving parts weigh 112 tons. Four hundred tons of coal are consumed by it every day in making the 7,200,000 pounds of steam which it uses daily. For condensing the steam 86,000,000 gallons of water are required each day. When the other two turbines, similar to this one and now in course of construction, are completed and in operation, the three monsters will require 258,000,000 gallons of water a day

for condensing the steam, or almost as much water as is required for the daily supply of the entire city.

Among those who witnessed the starting of the turbine were: Mr George B Cortelyou, Mr C F Lacombe, Chief Engineer of the Department of Water Supply, Gas and Electricity; Mr N F Brady, Mr J W Young, Mr John W Lieb, Jr, Mr F J McGuire, Mr Robert B Tait, Mr Arthur Williams, Mr Robert Grier Cook, Mr C A Coffin, Mr J P Sparrow, and Mr William H Bradley.



Prominent Officials Present at Starting of the New Turbine. From Right to Left are Seen Messrs George B Cortelyou, Nicholas F Brady, William H Bradley and John W Lieb, Jr



## A Shipbuilders' Home

**B**ENEATH it is the Harlem River, dotted with myriad shipping craft. Standing on the broad veranda one sees Manhattan Island, bristling with apartment houses, while the eye wanders on across the Hudson to where the

institution and when it was completed, endowed it with a sum which of old would have been the heritage of a prince. The famous builder of ships ended his goodly voyage in 1899, but the work of his institution is only in its infancy.



**A Novel Institution Which Recently Closed Down Its Private Plant in Favor of Edison Service**

palisades mount abruptly skyward from the green river bank. A more charming view can scarcely be found within the limits of New York City than from the summit of the knoll where stands Webb's Academy and Home for Shipbuilders.

William Henry Webb was one of the greatest builders of boats that ever lived. He also founded this novel

As long as the neighboring rivers empty their waters into the sea, young men, strong in their untried courage, will go forth from the Academy to all parts of the earth, while aged shipbuilders and their wives will come here to end their days, for, said Mr Webb, "Why should we part the old people?"

Webb's Academy and Home for

Shipbuilders was incorporated in 1889, the building started in April, 1891, and completed in May, 1894. Its founder then announced it to be his desire "that it shall afford free relief and support to the aged, indigent or unfortunate men who have been engaged in the building of hulls of vessels or marine engines for such, in any section of the United States, together with the wives or widows of such persons; and also to furnish to any young man, a native of the United States, who may, upon examination prove himself competent, and of good character, a gratuitous education in the art, science and profession of shipbuilding and marine engine building, both theoretical and practical, together with board, lodging and necessary implements and materials while obtaining such an education."

The Academy is conducted on a strictly American basis. Three rules rigidly enforced are that students in the Academy must be American born, that guests at the Home must be either American born or naturalized American citizens and that they must have been employed in the United States.

Young men may enter the Academy between the ages of fifteen and twenty. To pass the entrance examinations, a young man must have completed his high-school course. Every expense is paid by the Academy, even medical attendance being furnished free, so that it is possible for the poorest student to obtain an education. The course extends over a period of four years and embraces advanced mathematics, physics and inorganic chemistry, theoretical and

practical naval architecture and marine engineering.

The first eight weeks of every student's summer vacation must be spent working and getting practical experience in some shipyard. The graduating classes number between six and fourteen. Graduates of Webb's Academy rank as Second Lieutenant of Engineers in the U S Revenue Cutter Service, while many enter Annapolis. The register of alumni shows that they hold responsible positions in every part of the country with large shipbuilding and construction concerns.

Mr Webb's father before him was a shipbuilder and upon his death the son took up the business. In a short period of time the firm was growing rapidly, and in another decade William Henry Webb was the leading shipbuilder of his time. His yards occupied a great frontage along the East River and ships built there sailed to every known part of the globe. He built the famous clipper-ship, "Young America," the masts of which were chosen as the proper height to which to build the Brooklyn Bridge so that the tallest ships might pass under.

In 1866, toward the close of the Civil War, after the supremacy of iron-clad warships had been proven off Hampton Roads, Mr Webb designed and built in his own yards the father of the modern battleship. It was 377 feet long and constructed on lines but a trifle more primitive than the present dreadnoughts. This was the famous Dunderberg which, finished too late to be of use to the United States Government, was sold to France.



The Mason Building—on Edison Service—Largely Tenanted by the Clothing Industry

## Recent New Buildings

**I**N the real estate operations of recent date there is a distinct tendency in the business districts to house in one large building many firms or the several branches of a certain trade or profession. This seems to be a further development of the instinct which caused the representatives of a trade to center in a certain locality, as, for instance, for many, many years, bankers and brokers have been associated with Wall Street, the leather business with "the Swamp," and jewelers and goldsmiths with Maiden Lane.

There is much to commend this trade-building idea, if it may be called so, practically as well as commercially. Business has become so specialized that a regulation office structure no longer provides the proper equipment for any and all occupations. Special provisions are made for different trades according to their technical needs. Examples of this development are to be seen in

many of the new buildings but recently completed, which will be given over to some one trade or to those closely affiliated with it.

For instance, a monthly magazine, a weekly periodical, in fact publications of all kinds and sizes and devoted to all purposes are printed in



**Art Color Building, 209-219 West Thirty-eighth Street - Another New Building Receiving Electric Current from The New York Edison Company**



## The Edison Monthly

the new home of the Art Color Printing Company, on West Thirty-eighth Street. Here are found facilities for every phase of the artistic side of the printing business.

The building is twelve stories in height, has a street frontage of one hundred and twenty feet, and was designed by its architects to conform with the most recent developments of the printing business, and especially to furnish a home for the graphic arts. Pillars were arranged to allow the building of presses between them without loss of floor space, and a system of ventilation was installed which prevents absolutely moisture affecting the paper and interfering with the printing of colors.

More than one-third of the space in the new building is occupied by the Art Color Printing Company, one of the largest magazine printing houses in the city. One weekly and six monthly publications are run off their presses, the total issue being more than a million and a half copies a month. To handle this vast output there are ten Miehle and six Cottrell cylinder presses, a Cottrell two-color web press, two Goss magazine web presses and three monotype machines.

From the presses through the bindery and finally to the mailing department, the publications printed by the Art Color Company are handled by the latest and most improved machinery. Through it all electricity is the motive force, seven hundred and eighty horse-power being supplied for the presses and other machinery, while three thousand lamps are in use. The other lofts are being rented by other printing houses and

an electrotyping and photo-engraving establishment is about to join the printers in the building.

One of the principal parts of art printing is the reproduction of colors. Great care is taken that working conditions are just suitable and special precautions are taken that no moisture is in the atmosphere. Moisture causes a shrinkage of the paper, affects its polished surface and prevents the proper register of colors. To avoid this, the floors, where the color printing is done are ventilated by an extensive system of blowers and exhausts, which cause rapid changes in the air.

The Art Color Building is wired throughout for electric service, current being supplied from the mains of The New York Edison Company, while the floors above the fourth have windows on all sides. The insurance rate, eighteen cents per hundred, is said by the owners to be the lowest in the city.

Manufacturers of men's and boys' clothing constitute a large part of the tenancy of the Mason Building, owned by the 692 Broadway Company. The building extends from Broadway to Lafayette Street with a main entrance on Fourth Street. It is twelve stories in height, of fire-proof construction throughout, and is equipped with five electric elevators and a sprinkler system.

The structure was erected by the Thompson-Starrett Company and was completed about January first. Besides its electric elevators the building is fitted with motor-driven house pumps, while the majority of the tenants use electricity for running their sewing machines.

There has just been completed in the heart of the china, glass and crockery district a twelve-story building, the first of its kind in New York. Its floors, each fifty by one hundred feet in area, are absolutely clear of columns, the entire weight of the building being taken by great twenty-four-inch steel beams. This absence of obstructions makes the floors unusually bright.

The building is supported by steel cross girders from the basement up. On the street building line a seven-foot girder weighing twenty-nine tons was used, while a four-foot girder was placed at the rear of the building. The intermediate girders graduate between



The New 71 to 73 Murray Street Building in the China and Crockery District Which is Going to House These Trades — Edison Service Will be Used

these two extremes.

This new structure is at 71 73 Murray Street and will have for its tenants the dealers in china and glassware who at present occupy the old-time, darkened structures which surround it. The building is equipped with two passenger and one freight elevator, is of fire-proof construction throughout and is fitted with an automatic sprinkler system. An enclosed fire escape, accessible only from a balcony outside the building, affords a ready means of exit in case of fire. Electricity was used during the construction of the building for all power purposes, and the finished structure is wired for a complete electric installation.

### New Quarters of the Health Department

**B**EFORE May 1st, 1912, the various bureaus of the Department of Health will have moved from the building at Fifty-fifth Street and Sixth Avenue, which they have occupied since August, 1899, and be gathered in their new home at Centre and Walker Streets.

There are few people who really know the vastness of the work carried on by the Health Department in a great city like New York. To begin with, there is the Bureau of Sanitation, within the jurisdiction of which comes the investigation of all complaints, including the general conditions of all buildings, plumbing, ventilation, nuisances arising from manufacturing, the keeping of cer-



New Offices of the Health Department at Walker and Centre Streets—Edison Service Used

tain animals, leaving unmuzzled dogs or dead animals on public streets. There is the Bureau of Mosquito Extermination which is doing such excellent work in draining the salt marshes around New York, thus eliminating the breeding-places of mosquitoes.

The Bureau of Contagious Diseases has absolute charge of any disease of a contagious nature in the city and the disinfection of premises. During the year 1908 there were 93,684 cases of contagious diseases reported in the Greater City. The Bureau of Child Hygiene has a very broad field to cover. Within its scope comes the inspection of schools, the care of babies in summer, milk depots, health records of children and the free nursing and care given to the children of the poor.

Both the Chemical and the Diagnosis Laboratories will be located on the top floor of the new building. In these laboratories antitoxin is made, for the greater part of the work of the Bureau of Communicable Diseases consists of fighting tuberculosis, typhoid, diphtheria, malaria, et cetera. The affairs of the various hospitals maintained by the Health Department are all managed from the headquarters of the Department and this constitutes the Bureau of Hospitals.

The work of the Bureau of Records is, perhaps, the most intricate and comprehensive of any of the bureaus. During the year 1908 there were 126,862 births reported, 73,072 deaths and 37,499 marriages.

The new home of the Department of Health of New York City is located at the southwest corner of Centre and Walker Streets. The building is a brand-new one and is

admirably adapted in every way to the requirements of the Department. The structure is nine stories high and thoroughly fireproof, being constructed of light brick, granite, limestone and terra-cotta.

The Centre-Walker Building, as it is known, was built by the Abingdon Construction Company, of 54 Lafayette Street, and is leased by that concern to the city. The building has 147 feet frontage on Centre Street and seventy feet on Walker Street.

The Health Department has long felt a pressing need for new quarters. Not only have they outgrown the old ones at Fifty-fifth Street and Sixth Avenue, but progress in the way of new building equipment and conveniences has placed the old quarters far out of date. In the new home of the Department there are 90,000 square feet of floor space as against 57,000 square feet in the old one.

This move is part of a general plan to cluster all city departments about City Hall. Many of the departments already occupy space in the large office buildings in the neighborhood. The building of the Municipal Tower is another instance of this centralizing scheme.

The artificial lighting and power in the new quarters of the Health Department are electrical, the current coming from the mains of The New York Edison Company. There are approximately 2,000 lights in the building and motors to a total of eighty horse-power. The ninth floor is entirely given over to laboratories where numerous electrical devices will be installed for experimental purposes.





Typical Electric Signs in the Theatrical District—Note Also the Lighting of the Port Cochere.

## Moving Signs along Broadway

**W**ITH all its faults upon its dazzling head, New York's White Way is at least unique. It is Broadway—the one and only. In no other city in the world is so great a quantity of light centered around so small an area. Much of this brilliancy is contributed by the large electric display signs, which have become so characteristic an element in the nightly glory, that one can hardly think of Broadway apart from its signs, or of them without the street.

As a matter of fact, there are more of the elaborate electrical displays in New York than in any other city, and probably more than in all the other cities in the country combined. Europe has almost nothing whatever to say on the subject. There are a few of the smaller displays in Paris and Berlin, one or two in London, but none of these present the riot of imagination and light that characterizes Broadway. Curiously enough, the only sign abroad that compares in any way with the nightly host that glitter around Times Square, was made in this country by the O J Gude Company and shipped to London, where it caused a veritable sensation.

This is the sign on the tower of John Dewar and Son's distillery, and represents an enormous Scotchman, more than one hundred feet tall, partaking of a glass of his favorite beverage.

From another point of view, generally overlooked, these signs are really remarkable, that is as ex-

amples of constructive ingenuity. For instance, the large electric display signs involve from one to six thousand globes. The framework itself is probably a hundred or more by some fifty feet in size. To produce a sign of this dimension, properly braced, is an engineering problem which involves a knowledge of steel construction as well as of electricity.

One of the most famous displays ever erected was the Perrier "fountain," used to advertise that table water. This in addition to being a highly elaborate sign, composed of 5,852 globes, possessed no small claim to genuine beauty, which hardly can be said of all the signs that grace Broadway. It was modeled after the famous fountain which Louis XV erected at Versailles, containing thirty-seven streams, varying in length from sixteen to sixty-seven feet, which were kept in constant motion. This last effect, in this as in all other displays is gained by the use of "flashers," especially constructed according to their use.

The fountain sign is interesting from yet another standpoint. It is generally believed that a display gains more advertising "pull" from its startling qualities than from any artistic merits; so the signs are designed more to dazzle than to please. Yet the success of the "fountain" as an advertisement was signal, indeed far and away beyond that of many designed entirely to "pull."

The Heatherbloom Petticoat sign is often pointed out as an example of



A Famous Sign Containing Nearly 6,000 Lamps

realism in electric display. This shows a girl walking in the wind and rain, holding an umbrella, her skirts constantly flapping, while intermittent torrents whirl down. The skirt motion, giving the effect of wind, is produced by a series of very rapid flashes of bulbs forming the bottom of the skirt and petticoat, while the rain is switched off and on every twenty seconds. Incidentally, the Heatherbloom girl is a sizable young person, measuring some fifty feet to the top of her umbrella, while her shoes are six feet long. This sign is done in red, green, white and purple and contains more than 2,000 globes.

The subject of color in signs is not altogether simple. Thus, in yellows and opal tints, only a comparatively small percentage of light is lost, in comparison with a clear bulb. Next come amber, pink and orange, while with ruby and green the loss reaches ninety per cent, and with blue and purple the figure is ninety-six per cent. The absorption is proportional with the heating effect, so that a high absorption factor means a shorter life for the lamp. Further than this, some colors carry much farther than

others and as an important part of the advertising value of the sign is the distance from which it can be seen, these factors enter to prevent color selection on purely æsthetic grounds.

A most successful display is the Corticelli Kitten, which has rolled its spool of silk on the corner of Broadway and Thirty-ninth Street for several months. This has given such good results that the manufacturers are planning for the erection of its duplicates in this country's twenty-five largest cities. While the kitten may not meet the demands of absolute art, only a person of crabbed disposition can fail to give an inward chuckle while watching the little animal wind itself up in the silk. Really, the kitten long ago reached the cat stage, for it is thirty-six feet long and thirty feet tall, while its toy is fifteen feet by sixteen. Nineteen hundred globes of white, red and green go to make up the sign. The apparent action shows the kitten unwinding the silk



Typical Moving Sign—Several Shifts Can be Seen

from the spool; the spool and the kitten's paws being in continuous motion. Then globes of light, representing the thread, appear across the kitten, which presently is entirely immeshed. Suddenly the whole is switched off, and after an instant the play begins again.

The White Rock sign is another which is creditable for its mechanical ingenuity and advertising effect. This is centered around a clock giving the correct time at all hours of the day and night to the millions who pass Times Square, while two great streams of water play from lions' mouths on either side. This design while not of the largest, being sixty-two feet by fifty, presents a dazzling mass of light, some 3,700 globes being embodied. The clock face is twenty-seven feet across, while the figures, more than four feet high, are pointed out by hands seven and nine feet long.

Taking these few signs as an example, it is easy to see why their cost runs up into thousands of dollars, for into their making goes ingenuity, science and an amount of artistic effort not to be despised. It takes about a month for a single one of these large electric displays to be planned and executed, and the services of from five to ten men specially trained for this sort of work. These signs cannot be massed, and turned out, factory fashion; each one has its own design and its own problems, requiring an uncommon amount of the inventive faculty.

The designs are usually exclusive, and are worked out by the art department of the manufacturing firm and cannot be imitated, since they

are covered by a patent controlling all electric signs containing moving figures. This is United States Patent No. 648,677, which is owned by the O J Gude Company.

The sketches provided by the art department are merely pictorial, and from them working drawings and blue-prints are prepared. The sign is generally made from these, it being seldom necessary to prepare a



An Excellent Example of Mechanical Ingenuity.  
The Clock Face Measures Twenty-seven Feet

model. More time is spent on building the framework than in placing the sign itself, for the steel structures are built for permanent use and are expected to outlast many designs. As the last step the sign is tried out in the shops, although with the larger creations it is sometimes found necessary to test in sections. Finally, having been "tried on the dog," the new sign is ready to join the galaxy that shine down upon Broadway.



## Lamp-Posts in the Making

**D** ID you ever see lamp-posts in the making? To say that it is an extremely interesting and spectacular process is an entirely conservative statement. Down in the

moulded and the last carload has been sent on its way, nearly 2,000,000 pounds of iron will have gone into New York's new lamp-posts. To melt this enormous quantity of iron



**Assembly Room of the J L Mott Iron Works, Trenton, N J. This Concern is Sending 120,000 Pounds of Lamp-Posts to The New York Edison Company Weekly. Here Castings are Assembled, Trimmed and Painted**

other end of the State of New Jersey is a great foundry, one of the largest of its kind in the country, and every week its great smelting furnaces pour out 120,000 pounds of white-liquid iron which is moulded into lamp-posts, which will soon adorn the streets of New York City.

When the last lamp-post has been

a quarter of a million pounds of coke will have been used. Before the new year is here, The New York Edison Company will have set the last of these more than 1,500 new lamp fixtures which it has purchased from the J L Mott Iron Works in Trenton, New Jersey.

The forenoon was well advanced

when the writer found himself in the big gray foundry room of the iron works. At that hour of the day the men were still busy with the moulds, or flasks, as they call them in the foundry. Every morning is devoted to preparing these flasks for the hot metal. A flask is nothing more nor less than a hollow iron frame divided into halves through the horizontal center, so that the top half can be raised from the bottom. One-half at a time is placed over a pattern and filled with sand, which is packed tight about the pattern.

About fifty little L-shaped rods, known as gagers and coated with fire-clay, are placed upright in the sand. Then more sand is dumped in and packed down. When it is filled, along comes the big traveling crane, lifts it clear of the pattern and swings it into the air. Visitors gasp, expecting to see the sand come tumbling out on their heads, but instead the impression taken from the pattern remains perfect, the adhesive sand holding together like clay with the aid of the gagers.

The two halves were now ready to be placed together. All at once the doors of a big furnace swung open at the farther end of the foundry. The crane seized a dark object from the truck that rolled out and came swinging it toward us. This was the "core," the part which goes inside the flask. In moulding a lamp-post, were it not for the core, the post would be a solid piece of iron. This temporary center forms the hollow space inside the post. It consists of a mixture of seashore sand, linseed oil, and flour, baked in the oven—not a very palatable bis-

cuit by the way—and after the lamp-post has been moulded the core crumbles and drops out.

The core is suspended by its ends in the bottom half of the flask while the crane lowers the other half carefully over it. The two halves are clamped and bolted together and the flask is ready to swallow its potion of molten iron. All morning long, while the tons of "pigs" have been melting in the "cupola," some two hundred and fifty men have been preparing the flasks and now the sand floor of the big foundry room is covered with them. One o'clock has arrived, time to begin the pouring. The foreman gives the word and the huge ladle, coated inside with fire-clay, is wheeled up under the spigot from which the white stream spouts.

When three tons of the sputtering liquid are in the ladle the crane grapples it and the pouring begins. Two men tilt the ladle and direct the flow into the flasks. Sufficient of the liquid to mould an eight-hundred-pound lamp-post base is poured in less than two minutes. In about ten minutes after the metal has been poured into the flask, the crane takes off the top half and lifts out the newly moulded and smoking lamp-post. In that state, however, it bears very little resemblance to the finished product.

After the casting has cooled sufficiently to be handled it is cleaned up, the core is knocked out, and the metal taken into the assembling room, where electric drills trim off the burrs and roughness. Here it is put in a lathe and the ends turned out to gauge; the miniature doors are put

on the bases and each piece receives its first coat of paint. Outside the foundry entrance is a convenient box-car into which the parts are loaded. Then begins the long journey to the city, where in future years the newly made posts will stand, doing their part in illuminating the paths of men.



The Traveling Crane is Lifting the Smoking Casting Out of the Flask. The Casting weighs 800 Pounds. Only Ten Minutes Have Elapsed Since the Metal was Poured in the Flask

### Further Adventures of the Electric Patrol Wagon

TO the already formidable array of notches on the controller handle of the electric patrol wagon of the Tenderloin precinct, has been added one to commemorate the recent raid on a West Thirty-eighth Street gambling house. Each of these notches represents the accomplishment of some unusual task, and the diversity of tasks that have

been assigned to this particular patrol wagon is almost endless.

It is when the precinct captain or district inspector makes a raid that the electric is put to its greatest effort, and as raids in this section of New York are of frequent occurrence the patrol is seldom idle. On its last appearance as a raid adjunct, the vehicle carried a squad of detectives to the suspected building, delivered a load of prisoners at the West Thirtieth Street station house, and then

made several trips between the resort and the lock-up to bring in the gambling paraphernalia. Not only were faro tables, poker chips, roulette wheels and other devices taken to the station-house, but even the iron doors which were supposed to hold off the raiders were unhinged and brought



The Different Sections are Put on Lathes and the Ends Turned Out to Gauge. This Shows a Mast-Arm Base on a Lathe

along as evidence of the character of the place. From the station house the prisoners were taken to the Night Court for arraignment and the entire load of gambling material was taken to Police Headquarters.

## A Poem on the Turbine

**S**OME time ago the editorial pages of this magazine suggested an automatic screw machine as a proper theme for the poet who can see the romance of our world. Although no bard has stepped forth with lyre all a-tune, the editor feels confirmed in his contention by no less critical an institution than the *Atlantic Monthly*, whose revered pages show verses addressed to the turbine-generator:

"The first man dreamed of light,  
and dug  
The sodden ignorance away, and cursed  
The darkness; young primeval  
races dragged  
Foundation stones, and piled  
into the void  
Rage and desire; the Greek  
mounted and sang  
Promethean songs and lit a  
signal fire;  
The Roman bent his iron will  
to forge  
Deep furnaces; slow epochs  
riveted  
With hope and secret chambers;  
till at last  
We, you and I, this living age of ours,  
A new-winged Mercury, out of the skies  
Filch the wild spirit of light, and chain  
him there  
To do her will forever."

## The Electric Immersion Coil

**W**ATER—heated at the table and in a glass tumbler if necessary—has been made possible by the recent inven-

tion of a device known as an immersion coil. All that is necessary is to place the coil in the water and turn the switch. The water will boil in about a minute, and without danger of cracking the glass. To heat water is the simplest of applications of this device, for its field of usefulness is almost limitless. The daily needs of the home, the hotel, the



Here the White-Hot Metal is Being Poured into One of the Flasks. This Ladle Holds Three Tons and is Carried by the Crane. The Inside of the Ladle is Coated with Fire-Clay to Keep it from Melting

hospital, the barber shop, the dental office, the restaurant or the traveler by rail or boat, show most clearly what a convenience the heater is. This electric immersion coil is so compact that it can easily be carried in the coat pocket, and the demand is growing so rapidly that several manufacturers are placing them on the market.



# Electric Vehicles and Fire Risks

**F**IRE at sea is the most dreaded of all marine dangers, and second only to such a blaze is a dock conflagration or a fire in the hold of a vessel in port. Such fires are hard to fight because of their inaccessibility. Not many years ago, before the days of the fire-boats, a

high insurance premium, and if it can be shown that a gasoline automobile has been on the pier just prior to a fire, the insured forfeits all claim to the benefits he might otherwise have received.

So great is the fear of fire caused by a gasoline "flash," that the ferry

companies are governed by an iron-bound rule requiring chauffeurs to stop their engines on boarding the boat. In the case of steamship docks, there is an absolute prohibition of the entrance of gasoline cars beyond the bulkhead building.

For this reason the electric car has found great favor with importers and truckmen who handle import and ex-

port shipments. The electric, in which the fire risk need not be considered at all, may go anywhere. In the case of one importer whose truck backs right up to the edge of the pier, his goods are swung over the side of the steamer and unloaded right on the vehicle. Then with a full load the truck makes its way down the pier past stores of inflammable material and so on to the street.

Alexander D Shaw and Company,



**A General Vehicle Three-and-a-half Ton Truck Taking a Load of Wines from the French Steamer Chicago**

blaze on the end of a pier was almost beyond the reach of the fire engines, and by the same token, a conflagration in the hold of a vessel could hardly be reached by any but the ship's lines of hose.

Even today, the most stringent regulations are enforced for the protection from fire of the almost priceless merchandise which is daily unloaded on the docks of New York. Smoking is prohibited, as a general thing; certain illuminants mean a

importers of Guinness's Stout, wines and champagnes, use three-and-one-half-ton trucks for practically all their shipping. The truck not only transfers the cases from the steamship dock to the warehouse but makes many deliveries. In doing this work the machine averages about twenty-five miles a day.

A word might be said about the gasoline "flash" and what it means as a fire hazard. A typical instance of this "flashing" occurred last summer, when a dentist, in filling the gasoline tank of his automobile, spilled some of the fluid on the floor of his garage. Four hours later, he went into the garage with a lighted lantern, and an explosion instantly followed. The gasoline he had spilled that afternoon had turned into a highly inflammable gas that exploded as soon as

the lantern was brought near it. Gasoline "flashes" at a temperature of sixty degrees Fahrenheit, and in many cases at a much lower point.

It is in this matter of fire risk that the electric car has the greatest advantage over its smoky, smelly rival. The gasoline car must be stored in a specially built garage, insured at high rates and either obnoxious to or remote from neighboring buildings. On the other hand the electric may be housed in the

parlor, the cellar or, in the instance of the business man, on the loft floor with his most inflammable materials. In no case does he make himself liable to increased insurance rates.

At the recent Electrical Exposition at the New Grand Central Palace, the safety of the electric was most dramatically impressed on those who investigated the matter. In a building erected over a maze of railroad tracks, housing the head-



**An Electric Truck Making Its Way Down the French Line Pier After Taking a Shipment of Goods from the Steamer**

quarters of the local furniture industry, and in which were carried on many activities not connected with the Exposition, there was set up an electric vehicle garage and a demonstrating track. On this track the cars were operated every day, instructions were given prospective purchasers, and on one night a series of contests were held. All this was done without a single question from the Fire Underwriters, and as the events of the ten days proved,



New Babcock Touring Car

there was never a moment about which they could have had the slightest concern.

### Test Run by Babcock Car

**T**HE latest model touring car made by the Babcock Electric Carriage Company of Buffalo recently made a test run in Chicago, covering 175 miles, on a single charge of the battery and averaging fifteen miles an hour. On a run of 112 miles an average speed of twenty miles was attained, while on another occasion the car made the run between Boston and Providence, carrying four passengers. The entire distance, about eighty-eight miles for the round trip, was made at an average speed of nineteen miles

an hour. The car is equipped with a sixty-cell 6-A Edison battery and is finished on the lines of a gasoline touring car, seating comfortably four persons besides the driver.

"Everyone hates a martyr."

"If your average isn't the best you can do, it's at least the best you will do."

"People are always neglecting something they can do in trying to do something they can't."

"The man who can keep a secret may be wise, but he isn't half as wise as the man with no secrets to keep."

"When a man does his best, he will find that he does very well."

E W HOWE

*Country Town Sayings.*



The Waverley Company Has Just Filled an Order for Nine Mail Wagons to be Used in St Louis

## Diamond Cutting by Electricity

**A**LTHOUGH diamonds have been known since history was first written, diamond cutting as a scientific process dates back only to the fifteenth century and it is only within the last few years that it has been found possible, by the use of electricity, to cut a diamond across the grain.

In the early days, well back in Old Testament times, eastern potentates and high priests numbered these stones among their treasures, not, however, on account of their brilliancy as we know the diamond today, but probably for rarity and hardness.

These stones, as picked up in the courses of Indian rivers in dry seasons, little resembled the glittering brilliant in its finished state. In earliest times a few faces of these hard pebbles, looking not unlike pale topaz, were polished by striking them together; a little later, wheels of *lignum vitae*, the hardest wood known, were set up and a little crude polishing was attempted. Scientific diamond polishing was not developed until the third decade of the nineteenth century.

About 500 B C, diamonds were carried to Europe, by way of the Greek mercenaries employed in the armies of the Persian satraps. All of these early jewels came from India, the home of the industry. In 1669 Tavernier, a French traveler, saw some 60,000 men at work in Hyderabad, the "Golconda" of ancient myths; it was from these deposits that the famous gems, Koh-i-nur, the Regent

and the Great Mogul, were taken.

It is around these ancient quarries that most of the diamond romances center. For instance, Koh-i-nur (mountain of light) belonged to the moguls of Delhi till 1526. Shah Zama was blinded by his brother Shuja, who wished to obtain



Diamond Polishing Benches in the Establishment of Stern Brothers & Company. Here Was Cut the Ernestine, the Largest Diamond Polished in America. Edison Service is Used

possession of the stone, but the victim hid his treasure in the plaster of his prison cell and only gave it up to save his family from torture. Koh-i-nur passed into the hands of Runjeet Singh, in whose family it remained until the Mutiny. In 1850, its adventures were ended by becoming one of the English crown jewels.

The Regent, afterwards a French crown jewel, was found by a slave



in 1701. He slashed his leg, and hid the stone in the cut, fleeing over seas. The captain discovered the trick, seized the diamond and flung the luckless slave overboard, selling the gem to a merchant, who in turn sold it to Thomas Pitt, the grandfather of Earl Chatham. In the rough, this diamond weighed 410 carats.

Most romantic of all possibly is the history of the diamond later called "Beau Sancy," which belonged to Charles the Bald, Duke of Burgundy, and which was cut in 1465 by Louis de Berquem of Bruges. In 1476, when Charles was fighting the Swiss, the famous diamond was dropped on the field of battle and picked up by a soldier who sold it for a florin to a priest. This good soul then made a franc's profit by selling it to the burghers of Berne. "Beau Sancy" is not again heard of for 100 years, when the King of Portugal pledged it to Nicholas Harlai, Seigneur de

Sancy, Treasurer of France. Sancy bought it for Henry of Navarre, and on one occasion when the jewel was in danger the messenger swallowed it for safe keeping.

It should not be forgotten that these famous early stones came into Europe from the far East. Diamonds were then prized not so much on account of their brilliancy, for this was before the days of expert cutting, but because of their being extremely rare.

Gold was always supposed to lie in the African territory, but apparently no one even suspected the existence of what has proved to be the greatest diamond fields in the world. The story of their discovery reads like fiction. The children of one Daniel Jacobs, a small Dutch farmer on the Orange River bank, found some white, hard pebbles in the river. The children's mother gave

one of these to a neighbor named Van Niekerk, who in turn gave it to John O'Reilly, a traveling peddler.



A Downtown Canon—Night View Showing the Lighting of the Singer Tower

O'Reilly, believing that it might be a precious stone of some kind, submitted it to a Jewish firm in Hoptown; there it was found that the pebble would scratch glass. It weighed twenty-one carats and was worth twenty-five hundred dollars. Ten months later, another diamond was found thirty miles from the Jacobs' farm, and in March, 1869, a stone weighing almost eighty-four carats was found by a shepherd boy, Van Niekerk bought this for 500 sheep, ten oxen and a horse, and sold it for \$55,000 to a trading firm, which in turn received \$125,000 for the jewel from the Earl of Dudley.

By 1870, some five thousand diggers were working in this locality, known as the Pinel and Klipdrift diggings. In that same year the rich Kimberly fields were discovered. These, the most remarkable diamond fields in the world, cover but a trifle more than ninety acres altogether, including the De Beers, the Kimberly, the Dutoit

span and the Bulfontein groups.

From the days when any miner hoped to pick up a fortune on his shovel, diamond digging has been developed into a complex and expertly managed trade, in which electricity plays an important part.

"For lighting," declares Mr Gardner Williams, for many years general manager of the De Beers mines, "the application of electricity has already proved to be almost indispensable. All tunnels and ladderways throughout the mines are lighted by electricity. In the stopes and other working faces candles are used. Electric lights have been found to be of the greatest assistance in enabling the men to get away from rushes of mud. Electric bells are in use throughout the mines, and have very greatly promoted the rapidity of hoisting

through the shafts." Electric drive in this trade has become a necessity, since the polishing wheels, which operate at 1900 revolutions per minute,



The Same by Day



Night View of New York from the Queensboro Bridge. Beginning at the Extreme Left are Seen the World Dome, the Singer Tower, Waterside, the Metropolitan Tower, the Theatre District and the Plaza Hotel

must be smooth running, with no vibration whatsoever. The revolving of this plate, a blended iron and steel composition, coated with diamond dust, accomplishes the cutting and polishing of the gem. In the Sterns establishment electric drive superseded steam-power, on account of its greater reliability of revolution, essential to polishing, since the wheel must run at an absolutely uniform rate of speed, under varying load, to produce the greatest brilliancy.

Remarkable results have been recently obtained in diamond cutting by the aid of electric power. Formerly it has been possible to cut the crystal only along its lines of natural cleavage. Now, with the electric drive operating the wheel at several thousand revolutions a minute, experts can cut the crystal across the grain.



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# Editorial

## *The Edison Monthly*

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The passing of the Christmas season brings the subject of display window lighting sharply to the fore. Almost every store, down to the humblest shop, attempted something in window decoration, including many that at other times make no effort in this direction.

The difference made by good lighting in the effectiveness of display is generally conceded but seldom put to numerical test. Recently, however, a count was taken in a Cleveland street, on which there were two jewelry stores, the window of one being poorly lit while the other had suitable, though not extravagant, illumination.

By actual count, it was found that out of every thousand passers-by, fifty paused at the first window while seventy-five stopped at the second.



The house organ of the central station of Louisville, Kentucky, reports some rather unusual adaptations of electric heat to different trades in that city. A fruit-dealer finds the constant steady heat of an electric

radiator excellent for ripening fruit. A printer has a cabinet with an electric heater attachment for drying the moist sheets fresh from the press, when a "rush job" is in hand.



Evidences of public recognition of the bad effects, both physical and mental, resulting from poor lighting have increased notably during the past year. For example, the December meeting of the Society of Illuminating Engineers was devoted entirely to conservation of vision.

Another body discusses the relation of eye-strain to crime. In a paper delivered by Dr William M Richards we learn that at Elmira Reformatory 56 per cent of the boys "suffered from serious impairment of eyesight," while at the reformatory at Rahway, New Jersey, 83 per cent were found in need of glasses.



Dr Richards further describes a class of thirty-seven defectives in DeWitt Clinton High School, who failed in every subject. "The most cursory examination showed that the sight of these defective boys averaged less than half as good as that of a class of normal boys in the next room. Does it require any special gift of prophecy to foretell that in the course of the next ten or fifteen years almost all of these boys will go the usual route of crime, reformatory and prison? The American Association for the Conservation of Vision

tried to obtain \$150 for two months' salary for a young doctor who wished to fit these and similar boys with glasses. It was unable to obtain this money. If we multiply \$150 a thousand times, we will get a conservative estimate of what these boys will cost the community before they die in penal institutions."



No one in these days, when constructive philanthropy is beginning to replace the "pound of cure," will deny the speaker's conclusion that it is cheaper to provide spectacles than penitentiaries. But starting prevention at a yet earlier stage, will it not be better economy in the end to guard against the acquisition of eye-trouble?

While all may admit that defective eyes should receive care, it is by no means accepted generally that the municipality or state should provide spectacles and oculists. However, it is plainly the duty of the educational system to see that school conditions do not actually militate against sound eyesight.

Editorially speaking, our memory does not extend quite to the Dark Ages, but there be schoolrooms, in which we have sat, from which it would seem as if eyesight could remain unimpaired only by special dispensation of the Providence that is said to watch particularly over children.



In fact, there is hardly any branch of physical equipment of the New York City school buildings in which greater improvement has been made

within the last decade than this very point of school-room lighting. Conditions which fifteen years ago were accepted as a matter of course are no longer tolerated by the school officials. Not only is greater care taken to obtain sufficient daylight, but wherever this is likely to prove inadequate, those in charge of the buildings see to it that a proper system of artificial illumination is provided.



It was a young couple,—a very young couple,—that started to elope one cold winter night. The cruel father had forbade the swain the house, and so, according to the account in the voracious daily press, there was no other hope. On the appointed evening, therefore, the youth chug-chugged up to the maiden's door in a fine new taxicab.

A moment later, and only a few miles of road lay between the very young couple and lived-happy-ever-afterwardness.

Unfortunately, the engine stopped and the chauffeur had to crank it up. That made noise,—a fatally loud noise,—likewise delay. He cranked it once, he cranked it twice, and then he cranked again.

At any rate, before the engine responded to treatment there appeared upon the scene a hired man with a shotgun, likewise the representative of paternal authority similarly equipped.

There was no elopement.

We offer our heartfelt sympathy to the very young Lochinvar, and also some advice. The next time, sir, you prepare to elope, permit us to recommend a silent—crankless—electric.



From Old Trinity—A Mid-Winter View

## Dangers of Steam

"**T**HE entire front of a seven-story building at Greenwich and Hubert Streets was torn out, the sidewalk ripped up, and nine people injured, when one of the boilers of the Greenwich Cold Storage Building exploded early today," reads the account in an afternoon paper of October twenty-first.

The report then continues: "Police-man Joseph Ward of the Leonard Street station was on fixed post at Hubert and Greenwich Streets. Suddenly, before his very eyes, the entire front of the cold storage building which occupies 402 and 404 Greenwich Street tumbled outward."

This account recalls a typical case of the not infrequent accident which serves to remind the general public that a steam boiler is not a safe thing unless in expert hands. The instance quoted is fairly representative. A plant is installed and for an indefinite time is operated without trouble. Then some negligence on the part of the fireman passes unnoticed, an unexpected strain occurs, and the metal gives at its weakest point with the force of exploding steam behind it,—and exploding steam is as destructive as so much gunpowder.

For the generation of electric current, the use of high-pressure steam with its accompanying dangers is an absolute necessity. For heating only, ordinarily high pressure is not required,—some ten pounds being generally sufficient. This, of

course, greatly lessens the risk assumed, but even at that not a few owners prefer to obtain not only their light and power from the street, but also steam for heating from outside mains.

There are simple and fundamental reasons, easily comprehensible by the veriest layman, why a central station, such as The New York Edison Company, can deal more successfully with high-pressure steam than can the average building owner or manager. First, one must trace out the foremost causes of boiler explosions. As formulated by the expert of a steam-supply company furnishing several down-town buildings, there are two elements, always closely related to each other, which may be found at the bottom of most boiler trouble.

An excellent boiler plant may be installed at the beginning, but with lack of proper care, trouble from the so-called "boiler scale" will surely result. Adequate cleaning at suitable intervals or chemical treatment can guard against this source of trouble, but where neither of these is provided the boiler scale caked against the side of the tube prevents the water from getting next to the metal and results in the burning and weakening of the shell or tube.

As long as water remains in close contact with one side of the metal, heat applied to the other cannot hurt it. An everyday example of this is the family teakettle on the stove.



No matter how hot the fire, as long as there is water in the kettle, all's well; but should the kettle go dry, its bottom is burned, as every house-keeper knows. Thus when boiler scale is formed it keeps the water from that portion of the tubing, which is then injured by the heat.

The second great cause of boiler

withstand the pressure of the steam and an explosion results.

The care and operation of the plant is usually in the hands of a fireman, one for the day shift and one for night. Where high-pressure steam is used a licensed engineer must be employed in the building, but humanly speaking, the fireman,



The Force of the Explosion Hurlled Part of the Boiler to the Corner, Sixty Feet Distant

accidents also arises from lack of proper attention. In any boiler the water must be kept at a certain level so that the hottest gases from the fire will not strike any portion of the metal which has not water behind it. Should the water fall below this point, the tubing burns and the metal is so weakened that it is unable to

an ordinary workman, commanding only from \$12 to \$18 a week in New York, is the man behind the boiler; his working hours are ten to twelve per day and sometimes more, for repairs and cleaning.

Such is the situation in the average privately owned generating plant. With a central station it is very dif-

ferent. In the first place the public service company, with its necessarily large boiler capacity, can afford to have not only the very best in the way of equipment, but also to care for it in the best way. The three shifts of firemen working eight hours a day in the Waterside Station of The New York Edison Company

least possible expense is required of the central station plant manager. A building superintendent, however, faces a different situation. The profits of the building must not be eaten up in running expenses. Very frequently, too, the owner may not at all realize the necessary expense involved in maintaining a plant, and



**"The Entire Front of the Cold Storage Building Tumbled Outward"**

can give much closer attention to their tasks than their fellow firemen on a twelve-hour stint.

Furthermore, the economics of the case are opposed. The central station must, for its reputation, maintain absolute reliability of service. This is one of its chief reasons for being. Therefore, reliability and not the

may protest at every bill for repairs or cleaning.

While all of these facts go to explain the neglect of boilers which frequently occurs in private plants, it in nowise lessens the dangers involved in the inexpert handling of steam, especially where high pressure is required.



The Hotel Orleans, at One Hundred West Eightieth Street, which has Recently Abandoned its Private Plant in Favor of Central Station Service

## Hotel Plant Closed Down

**N**EW YORK has of recent years become noted for the number and sumptuousness of its apartment hotels. Neither London nor the continental cities have undertaken this unique method of habitation to any extent, so it still remains peculiar to New York where the custom was apparently originated. Some of the gorgeous apartment hotels in New York might be said to rival in splendor the royal dwellings abroad. Marble, gold, and tapestry are used with a lavish hand in the interior decorations, while wonderful lighting effects, either brilliant or subdued, are produced.

There are, of course, many less glittering establishments where prices are not designed to prohibit all but the "yellow rich," but which present to the world a sedate and quiet front. One of these is the Hotel Orleans, at Eightieth Street and Columbus Avenue. This is a splendid twelve-story structure, overlooking the grounds of the Museum of Natural History. Just beyond this little park lies the great area of Central Park. From the windows of the Hotel Or-

leans, above the fourth floor, the view over the two parks is unobstructed, while from the few top floors, the eye travels over a fine expanse of trees and lake all the way to the handsome residences that line the eastern side of Central Park.

There are forty-five apartments in the hotel, ranging from two to five rooms each, while on the tenth floor is the dining room. The building was constructed about ten years ago and is at present owned by Dr W J Clarke, a physician, of 224 West Seventy-second Street. It has for some time possessed the distinction of having the lowest rate of insurance of any building of its kind in the city, which is due to its excellent fireproof construction.

Until November 27th, 1911, when Edison service was substituted, a private plant consisting of one sixty-



Part of the Abandoned Generating Plant of the Hotel Orleans.  
The Edison System has been Substituted



## The Edison Monthly

kilowatt and one thirty-kilowatt generator supplied the light for the building. At length the wastefulness of this method became so apparent that central station supply was decided upon as more economical and providing all-round better service. The entire building was practically re-wired and the lighting arranged

hydraulic, will be electrically operated by means of several twenty horse-power motors. A house pump will also be installed to be operated by a five horse-power motor. During the coming Summer, for the first time since the hotel was opened, the boilers will be closed down entirely, thus minimizing the amount of heat



A Parlor in One of the Apartments in the Hotel Orleans

according to the newest methods. Tungsten lamps,—1,600 in all,—were installed throughout. The changing of the lamps in the entire building was accomplished by the men of the Illuminating Engineering Bureau of The New York Edison Company in the short space of three hours.

Soon the elevators, which are now

in the building. This will be possible because the light and power will come from the mains of The New York Edison Company.

Under the new arrangement each apartment will be metered separately and the New York Edison Company will render an itemized statement each month to the apartment hotel owner,

who will re-bill the amount of current consumed to each tenant.

## Foreign News

**A** HIGH tension cable constructed for the Marconi Company for use at Clifton and Bay Stations (Eng.) recently withstood

## The Underwood Building

**T**HE new office of the Underwood Typewriter Company, an eighteen-story building at the corner of Church and Vesey Streets, presents a feature of unusual interest in that all its light, heat and power



A Typical Bedroom in the Apartment Hotel

successfully a pressure of 130,000 volts for ten minutes. The cable was insulated with impregnated manila paper, lead sheathed, and wire armored.

The German electrical industries have shown in nearly every branch an increase of thirty per cent over the year previous.

are generated outside the building, there being not so much as a low-pressure boiler on the premises.

Current to light the offices and lofts, power for the pumps and elevators, comes from the mains of The New York Edison Company, while a down-town steam generating company supplies the heating.

## The Edison Monthly



The Underwood Building—Exclusive Edison Service

The Underwood Building has been in use since last June, the typewriter firm retaining the first floor as a salesroom and offices above, while the rest of the premises are rented for general office purposes.

Two express elevators serve the tenants above the ninth floor, the hoisting drums and motors being situated in the penthouse at the top of the building. Local elevators run as high as the ninth floor, while their operating machinery is at the eleventh floor. In addition to these four motors there are two for the house pumps and a smaller one for the sump pump. The structure was erected by the Tidewater Building Company.

### The Rockfall Apartments

THE ROCKFALL Apartments, at West 111th Street and Broadway, bear the distinction, one shared by but few other apartments, of having been entirely rented before the building was ready for tenants. In a city like New York, where apartment houses are being erected almost as rapidly as sites



can be secured for them, the accomplishment speaks well for the attractions and comforts of the Rockfall.

Modern in every respect, the building was completed in the summer of 1910. It is ten stories in height, has

a frontage of 225 feet on West 111th Street; there are sixty-seven apartments, from six to nine rooms in size, and the rentals run from \$1200 to \$2200. George and Edward Blum were the architects.



**The Rockfall Apartment House, Broadway and 111th Street. Another User of the Edison System for Light and Power**



## The Edison Monthly

### A New Musical Instrument

**T**HE musical histories of our own time, written some years hence, will doubtless find the development of automatic and self-playing instruments an important element in the evolution of music in this country. Already certain effects

narrow opportunities are availing themselves of the better class of these mechanical devices. Performance is being more and more left to those who have some remote intention of making music their specialty.

An addition has recently been made to the list of these inventions, in the shape of an instrument which reproduces the music of the violin and at the same time plays a piano accompaniment. This new departure has been named the Paganini, after the great master of the bow. The music of nearly every instrument has been reproduced by some means or other, either in unit or in combination. Owing to the peculiar individuality of the violin tone, inventors have been striving in vain for years to reproduce it in a self-playing instrument and the Paganini comes closer to attaining this object than anything that has been produced.

The string effects of the violin are produced by means of finely voiced organ pipes of peculiar construction. These pipes are contained in a sound-proof compartment fitted with automatic shutters, which open and close to supply the varying technique of expression, from pianissimo to fortissimo. The piano is also controlled by automatic devices so that it plays an accompaniment with sympathy akin to that of a real artist.

The Paganini is operated by an



**The Paganini, a New Electric Musical Instrument which Reproduces Violin Tones and Accompaniment**

can be seen; the custom of causing all girls to take at least a few music lessons, almost regardless of their natural endowment, is distinctly on the wane. Such casual and unsatisfactory strumming is being replaced by the accurate, if unemotional, piano-player, while music lovers of

electric motor through the agency of perforated paper music rolls and self-contained suction and pressure bellows. The rolls are arranged on a system which separates the violin part of the instrument from the piano, thus rendering it possible to produce the natural effect of two

The Paganini is manufactured by the Rudolph Wurlitzer Company and is now on exhibition at their ware-rooms, 25-27 West Thirty-second Street.

## Notes and Jottings

The beetle and mosquito nuisance so prevalent in California has been practically done away with in the city of Sacramento by the excessive use of electricity. The riddance is attributed to the numerous high-tension lines with their corresponding static charge.

Electric lighting is being installed in the celebrated Brahmin temple of Kali in Calcutta. The innovation, both in its religious and practical aspects, was thoroughly discussed by the dignitaries of the cult.

The city of Glasgow will soon boast of a statue of Lord Kelvin. The figure will stand in a small area near the University grounds.



**The Same Instrument Open at the Back to Show the Mechanical Arrangement. The Violin Tones are Produced by Organ Pipes of Peculiar Construction, Placed in a Sound Proof Compartment. The Paganini is Operated by an Electric Motor**

different musicians playing the instruments. The master sheets from which the rolls are cut, represent the interpretations of great violinists. By a new system of arranging and cutting the rolls for the violin, fine results have been obtained.

Many three and four story hotels and business houses are being erected in the Orient for which modern electric elevators are coming to be adopted. This particular form of progress is especially noticeable in the larger Japanese cities.

## Stone Cutting by Electricity

**S**ANDSTONE, because of the ease with which it is cut and made ready for use, is required in great quantities for building purposes. With the possible exception of the ordinary brick, more of this stone than any other is used throughout the country each year. Yet despite the fact it is so common, very few not directly interested know the story of the transformation of the rough block to the finished piece of building material.

The great oolitic quarries for which this country is famous are situated near Bedford, Indiana, and from these beds, where it has lain undisturbed for ages, great quantities of the stone are taken each year. In this stone-cutting industry, as in many others, electricity as a motive power is rapidly displacing the methods of only a few years ago.

It was hardly more than thirty years ago that almost all cutting was done by hand. Cumbersome machinery was used to cut and free the stone from the quarry beds. It was then taken to adjoining yards and roughly cut into blocks of standard sizes, and shipped out to the dealers in all parts of the country. At about this time brownstone was very popular with city builders, and great quantities of it were used.

It was not until steam-driven machinery came into general use that any great architectural change appeared, for with machinery there followed a greater variety in stone cutting. For many years steam was the

only power employed by the stone cutters; recently, however, it has been superseded by electricity at the quarries, and concurrently the local stone cutters in this city have begun to adopt it for their work.

There are a number of stone yards in New York, located along the East River from Sixtieth Street up to 135th Street on the Harlem River. The John Liddle Cut Stone Company, of 106th Street, uses electricity for all hoisting purposes and for the operation of cutting machinery. A traveling crane is operated by a forty horse-power motor, while two motors of ten horse-power each are connected to the planing machines. Other yards employing electric current are the Cork-Vicha Marble Company, Charles H Bellows, J Cullo, Lastina Morris Cut Stone Company, J Best, E Klingenberg and Company, James W Conlon, and Jacob Stockinger.

The initial move in freeing sandstone from the quarry consists of stripping the soil and soft surface rock from the oolite bed. This is usually done by hydraulic pressure. A hard rock covering is then blasted away. Deep slots, varying from eight to eighteen feet in depth, are then cut in the stone. This operation is called channeling, the tool consisting of a steel rod with an eighteen-inch stroke, which is raised and lowered at the rate of 180 times a minute, advancing meanwhile across the face of the rock. A twelve horse-power motor, operated by one man, is used with the channeler, while the

old steam channeler required the services of three laborers.

The blocks formed by the channeler are loosened by a sidewise pull of a derrick crane, and are lifted out to the stone pile. Weather conditions permit of but eight or nine months' work in the quarry, but in this time enough stone is taken out to keep the mills busy the year round.

which is fed under the blade.

From the mills the stone is shipped by train and boat to the dealers in various cities. In their yards it is cut in accordance with the orders from builders and architects. Here all the stone carving, final planing and other special work is done. Motors have, in recent years, demonstrated beyond question the economy of electricity for



**Traveling Crane in the Yard of the John Liddle Cut Stone Company. A Forty-Horse-Power Motor Lifts the Great Blocks of Granite while the Crane Carries Them to the Cutting Beds**

In the mill yards the stone is handled by traveling cranes of from ten to thirty horse-power. Here the blocks are sawed to slabs of varying size and thickness, the saws used being of different types, some circular and some straight. Generally the teeth are set with diamonds, but occasionally they get their biting surface from quartz and water

power purposes. Its use in the quarries is increasing every season. For a long time private plants generated all the current used, but with the growing demand for current the Southern Indiana Power Company has planned a hydro-electric plant which will supply the whole Bedford district. In this district there are fifteen quarries and thirty-five mills.



### An Unusual Problem in Store Lighting

**A** VERY difficult problem of store lighting was presented when an attempt was made to lay out a system of illumination for the New York office of the Mosler Safe Company at 375 Broadway. The rows of great black safes, some of them standing eight feet from the floor, cast heavy shadows, so it was necessary to overcome this before satisfaction could be had from any

illuminant. By arranging tungsten lamps in rows at carefully figured distances, it was possible to light every corner of the room, and to throw the light on the interior of the opened safes. The engineer in charge of the installation was Leo S Stern.

One of the interesting displays in the salesroom is a bank treasure vault, completely equipped, showing a steel-lined room, a ten-ton vault door, the safe-deposit boxes, the money reserve chests and the bullion lockers.



The Largest Safe Salesroom in the World—the New York Office of the Mosler Safe Company. This Floor, which Sustains a Weight Aggregating Thousands of Tons, was Built Especially for the Safe Industry. Among the 300 Safes on the Floor is one Weighing Forty Tons

A well-fitted machine shop is maintained to take care of such repairs as become necessary, and in a cabinet workshop is turned out the work that is required when the installation of a safe makes necessary the rearrangement of a customer's office furniture and fixtures.

Heavy trucks of both gasoline and electric drive and a number of horse-drawn vehicles handle the work of the moving and also of the delivery department.

A remarkable condition of the safe-selling industry in New York is the very small percentage that is done on the installment or part-payment basis. Ninety per cent of the safes that are sold bring cash.

Various kinds of heaters have been tried, but none have given the satisfaction afforded by the electric used in the Kaufman store on Broadway near City Hall Park. In this store an electric iron is also employed.

Freedom from fire risk, economy of space, and a more even distribution of heat are some of the advantages found in the use of the electric heater, here and elsewhere.

The Kaufman stores are among the most progressive in the trade, their adoption of electrical appliances affording a typical instance of an up-to-date policy. Electric irons have been used in Kaufman shops for some time, and as soon as improved patterns appear, the old ones are discarded.

## Electric Stove in a Hat Store

THE retail hat store offers a new field for the use of the electric heater. Already there are several in use in various shops throughout the city and in every case their superiority over other types has been demonstrated.

There is hardly a hat sold at retail that fits the shape of the buyer's head. In almost every case it is necessary to reblock and shape the head size. To do this, the hat is heated over fire, is then fitted over an adjustable block and shaped, and then ironed.



Electric Stove Used to Shape Hats in a Broadway Store

## Concerning Electric Vehicles

**A**N ELECTRIC limousine, seating five passengers and which allows the occupant driving an unobstructed view ahead, has recently been produced by the Waverley Company. The new car has a wheel base of 104 inches, a body sill of 129 inches and a length over all of 144 inches. It can readily be seen that such dimensions are unusual for an electric car and the building of it has only been made possible in the last year through the latest improvements in batteries, tires and gears.

The car has practically the same regular equipment as the Waverley roadster that recently made 1400 miles in 124 hours' running time, on the "Four State Tour." The design of the car is a refinement upon the lines of the town chariot of French workmanship, used in the period of the First Empire. In general construction this new car embodies a combination of ideas and material that should give it a place among the popular electrics of the day.

### The Motor That "Came Back"

**A** MOTOR that "came back" and has actually been working since for five years and perhaps will continue to do so for five years more came to light the other day.

It seems that about five years ago the engineer of the power plant at the Waverley Company's factory, Indianapolis, Indiana, decided to install an oil pump to force oil through the different machines into a filter and back again. A motor was necessary to run this pump. The engineer found in the junk pile a second-hand Waverley electric vehicle motor. He tested it and then placed it about four feet under the floor of the engine room in a pit just wide enough to admit the motor and covered with a board flooring.

Naturally not a little grease and soot from the engine room settles in the pit and on the motor. To make



Exterior of the New Waverley Electric Limousine



Interior, Showing the Seating Arrangement for Five Passengers



A Characteristic Form of Electric Truck. One of the "G V" Cars Used by the Childs Restaurant Company

matters worse the pit is surrounded by steam pipes so that the temperature never goes below 100 degrees.

One day, a few weeks ago, a salesman was showing a visitor through the factory and by chance discovered the little motor running away as merrily as if it had not a single care in the world. He was interested in the faithful little machine and looked up its history.

In the long five years of almost constant running, under the most adverse conditions, it has never been stopped for repairs of any kind. The only attention it has ever had is oiling once a week.

**A** RUN of unusual merit was made a short while ago by one

of the three-and-a-half ton electric trucks, owned and used by the Lincoln Safe Deposit Company.

Carrying a load of approximately 3000 pounds, this truck left the company's Forty-second Street warehouse at 11:25 A M, bound for Stamford, Connecticut, thirty-seven miles distant. The driver stopped an hour for luncheon and reached his destination at 4:24 P M, the time consumed in travel being one minute less than four hours.

The truck was recharged over night at Stamford, and made the return run to New York City the next day in a total of four hours and a half, including the stop for luncheon. This trip indicates that electric vehicles can handle economically deliveries even beyond the territory usually rated as suburban. This truck was made by the General Vehicle Company, and is earning a well merited success.



This Three-and-a-Half Ton Electric Owned by the Lincoln Safe Deposit Company made the Thirty-Seven Mile Run to Stamford, Connecticut, in less than Five Hours



### Electrical Fire Apparatus

**S**PRINGFIELD, Massachusetts, is the only city in this country that has as yet adopted electric fire-fighting apparatus as part of its regular department equipment. Since last March three storage battery cars, two ladder trucks, and a combination hose and chemical wagon have been in service in that city.

to discuss ways and means of increasing the scope and effectiveness of their work. Of course, the topic most considered was the adoption of motor-propelled vehicles, to displace the horse. Chief Dagget, of the Springfield department, according to the report in the *Commercial Vehicle*, amazed his hearers when he presented the report of the performance of electric cars during the time they had been in service under his observation. In speaking of the econ-



The Standard Couple Gear, Four Wheel Aerial, which was Placed in Service Last March by the Springfield, Massachusetts, Fire Department. The Operating Expenses of this Apparatus are Figured by the Fire Chief at Less than Fifty Dollars a Year

One truck, an eighty-five foot vehicle, carries 325 feet of ladders, a crew of seven men and has a speed of twenty miles an hour. In a test, the truck climbed a twelve per cent grade at eight miles an hour. The combination wagon carried a forty-gallon chemical tank, a thousand feet of two-and-a-half-inch hose and a crew to handle the equipment. This vehicle has a guaranteed speed of thirty miles an hour.

Fire chiefs from every part of the country met in Milwaukee recently

omy of this form of car, he said, in part: "This method of propulsion affords the minimum of expense in maintenance at least. The item of repairs is hardly worth mentioning. The only parts of the truck and combination to get out of order seriously are the batteries. Criticism that I have heard to the effect that the batteries will not last long enough to make them practicable is unfounded. My belief that the batteries will prove to be well worth their original cost is founded on the fact that after

fourteen months, the space of time which has elapsed since their manufacture, they show not the slightest sign of deterioration. They have just been examined by an expert, who finds them in perfect condition. Batteries, I should say, will have a life of at least four years. The cost of replacement is \$400 to \$500.

"The cost of recharging the batteries of the two pieces of apparatus is the most important item in the bill of maintenance. The cost is: April, \$3.78; May, \$7.77; June,

the annual cost would be not more than \$50.00."

Commenting on the cleanliness, this is given as an important consideration in favor of the electrical apparatus. There is no dripping oil, nor scrubbing of engine-house floors, neither are wooden floors rotted by grease, while the apparatus itself is kept clean more easily. The advantages were summed up as follows: Immediate action at all times and in any temperature; any or all speeds are practicable. No loss of



After Testing the Regular Couple Gear Four-Wheel Electric, the Department Ordered a Three-and-a-Half-Ton Semi-Trailer. The Front Wheels, Axles and Pulling Gear, were Removed from an Old Horse-Drawn Truck and the Body was Mounted as Shown in the Cut. A Speed of Twenty-seven Miles an Hour was Attained on a Trial Run

\$11.94; July, \$6.21. Total, \$29.70, or \$14.85 for each piece of apparatus, or an average of \$3.71 a month for each piece of equipment. A large share of the recharging cost for this period is due to exhibition runs and training for the men who operate the apparatus, and not to actual fire work. After the truck has been in service longer, and it will not be necessary to make practice runs, the recharging cost will be considerably reduced. Supposing, even, that we spend \$4.00 a month on batteries,

power at any speed; economy; cleanliness; no damage to building or contents by smoke; less danger of fire.

"By immediate action I mean this," said Chief Dagget. "In the event of an alarm, the driver of electrically propelled apparatus has but to jump into his seat, throw over a lever, and be off to the fire. He does not have to crank his car before starting, and is never bothered by hot or cold weather—temperature has no effect on electric equipment, and this alone constitutes a great advantage."

## Sanitary Refrigeration

**I**N the modern house a very necessary adjunct is the refrigerator. Its development in recent years has kept pace with the increasing knowledge of the principles of sanitation and of hygiene. The old-style

the best. In the case of mechanical refrigeration an economy of space may be effected in the house by installing the refrigerating plant in the basement, or even in the garage or some outbuilding. Electricity will



Electric Refrigeration Affords excellent Facilities for Displaying Goods behind Plate Glass

wooden box, with its leaky bottom and unwholesome odors, has long ago been discarded and in its place there is the scientifically constructed apparatus that promotes the health and comfort of the family.

If natural ice can be readily obtained it is undoubtedly cheaper, but the cheapest thing is frequently not

be the motive power. This has become almost axiomatic for both large and small plants. In evidence of this is the case of a large wholesale butcher shop at 125 Christopher Street, whose proprietor has recently placed an order for a twenty-five horse-power motor to replace a steam-driven compressor.

All mechanically cooled refrigerators are constructed on the same general plan. Each is fitted with a coil of pipe through which ammonia is expanded in brine, producing a very low temperature. This brine, reduced to a low temperature by the ammonia, is pumped through the piping in the refrigerating compartment. Some re-

The initial outlay in connection with the refrigerating and ice-making plant is not inconsiderable. On the other hand there is a great saving of ice bills, and when the consumption of ice is large, mechanical refrigeration, taking into consideration the investment and all operating expenses, is ultimately cheaper.



**The Gard Meat Store, Where Electric Refrigeration is Used to Great Advantage  
The Glass-Covered Counters are also Included in the Refrigeration System**

frigerators are designed for operation by day only and in these a tank is provided sufficiently large to afford storage for cold brine. The temperature is maintained when the compressor is shut down, by continuing the brine circulation with the pump. Artificial ice is made by lowering special receptacles filled with water into the cold brine tank.

Attendant upon ordinary ice cooling are dampness and unsanitary conditions in general; deterioration of ice boxes due to abuse in filling the ice chamber, the inconvenience of bringing in the ice, to say nothing of the varying and uncertain temperatures produced, and often the still more uncertain supply of the essential article, — the ice itself



New York City has some excellent examples of electrical refrigeration. Among the residences where it is in use are those of the Hon Whitelaw Reid, Mr George J Gould, Mr J B Clews, Mr B N Duke, and Mr J B Duke. One of the most interesting installations is in the Bachelor Apartments, 15 East Forty-eighth Street, where forty-eight re-

frigerators are employed in every line of business where refrigeration is necessary. It has even found its way into Arabia, Borneo, Brazil, China, Hawaii, India, Japan, Liberia, Chile, Mexico, Peru, the Philippine Islands, Porto Rico, Uruguay, and Venezuela. An ice-making machine, exported from New York, is in use in the residence of Mr C Carlos Vitera, Guayaquil, Ecua-



Central Park—from Columbus Circle—on a Winter Night

frigerators, one in each apartment, are supplied by a machine which has a capacity of six tons a day. A somewhat similar instance is the Hall Apartment House, Fifty-first Street and Fifth Avenue, where an individual ice box is supplied in each of twelve apartments.

Practically all of the universities in the country are using electrical cooling, while it is also being em-

ployed in every line of business where refrigeration is necessary. One of the largest outfits in New York is the apparatus used in the Times Square store of the Hegeman Drug Company, where twelve tons of ice are made daily.

An interesting example of the use of electric refrigeration is a large meat market located in the terminal to a busy route of suburban

travel. Here is a machine making two tons of ice a day, operated by a five horse-power motor. The apparatus was installed three years ago and according to the owner it has run "like a watch" ever since. He regulates the temperature in his ice boxes and counters even to a single degree.

This establishment is perhaps the only one of its kind in the country. The trade is entirely suburban and,

## An Edison Reminiscence

ONCE upon a time "Quick-lunch Dolan's" was to be found at number three Park Row, and John used to carve the great sides of ham. He does today, though close on forty years have passed and he has become the personal friend of many noted men.

But the days when Horace Greeley with P T Barnum and Dry-Dollar



Broadway Looking North from Thirty-Eighth Street. Here More Than a Million Lamps Blaze Down Upon the Great White Way

as the customers are always in a hurry to catch the next train, it is necessary to keep a large number of cuts ready, particularly at the home-bound rush hour. The cuts are laid out in the long glass refrigerated counters, so that the customer can select what he wants without waiting. The suburbanite can also buy a leg of lamb, a ham, or fowl, on his way to the office in the morning, and on his homeward trip he will find it roasted and ready to take along.

Sullivan ate their meals here, while Kelly and Leon and Mudge, the song and dance artists, gave impromptu performances, are gone forever because Dolan's is no more known as "Coffee Pat's,"—to be found at number three Park Row.

It was away back in the early part of 'seventy-five, that a young man by the name of Thomas Edison sat facing the noted Professor Sawyer across the little round table in the back of Dolan's coffee-stall.

## The Edison Monthly

Said Edison: "Ham and, John, and draw one in the dark." (At least that's the way the story's told.) Whereupon John turned as usual and with a single jerk of his long knife, cut a slice of ham, which he splattered with beans, drew a cup of black coffee and pushed the whole over. Then he relapsed once more against

"I tell you, son," the professor exclaimed, pounding the table with his knife, "I tell you, your theory is all wrong! It's the blue section of a flame which distributes light, *not* the white part!"

To this Edison said nothing at all, for he had disappeared behind the rim of a coffee cup which had no



Night at the New Public Library, Fifth Avenue and Forty-Second Street. Photographed from the Light Cast by the Lamps on the Opposite Side of the Roadway

the counter, listening, while these two argued the question of lighting which was then but in its infancy.

Somewhere in the back of the place, the little steam engine which ran a pulley to the overhead fan, chuffed and panted sturdily to itself, for the night outside was insufferably hot.

handle. When he again became visible he said carefully, measuring his words, "Maybe so, Professor, maybe so, but I have—"

"Electricity will *not* be the eventual lighting system," continued Sawyer emphatically. "If for no other reason than that it gives forth a white light. Nothing can be done in

this direction except with a blue flame. Besides, your idea of a substance with which to form the adjustable poles in a spark-gap is an absurd notion on the face of it."

"You may be right," said Edison, speaking very slowly, "but I don't think so—." He paused, gazing off abstractedly beyond the dingy walls, seeing only the clean, bright city which no one but he knew to lie within the future, —a city lighted and fed and warmed by a mysterious something which was then but hardly known.

In the silence a horse-car jangled by outside, while the little steam engine seemed also to add its note of protest to the thought which lay in this man's brain. It was very hot. A wandering fly lit on the back of one of his loose-jointed, blue-veined hands, —the hands that were daring to search out the inmost secrets of a force so gigantic that it had lain undreamed since the birth of the world. He moved them restlessly —"because," he continued softly, after a moment, "because some day I *shall* find that substance, and then the world will light itself by electricity."

And he did.

## Country Town Sayings

Men usually play poker because they are conceited.

A person with a naturally mean disposition has a great many opportunities for showing it.

To be an ideal guest, stay at home.



Night View of the Hotel Esplanade, Berlin. Here the Illumination is Obtained from Lamps Directly in Front of the Building

A thunderbolt never yet fell from a clear sky.

When we look at some men who say they were sent to save the world, we can't help laughing.

—E W Howe.





Downtown in Manhattan



# THE EDISON MONTHLY

VOLUME IV

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# Editorial

## *The Edison Monthly*

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Elsewhere in this issue, the progress made by electric vehicles during the year, as evidenced by the annual automobile shows, is treated fully, and no attempt will be made to discuss it here. The early part of the Winter gave comparatively little of the weather for which the motor truck is especially recommended, but one heavy snowstorm during the Christmas shopping season brought forth a significant result. The department stores having motor-truck equipment advertised that fact, guaranteeing prompt delivery of their goods in spite of the snow.

A year ago electric vehicle manufacturers were preaching this to prospective customers. Apparently a twelve-month has been sufficient to convince some of the foremost merchants in the land, who in their turn are now spreading the same doctrine to which they have been converted by experience.



The burning of the Equitable Building is of distinct significance to

every one interested either in the generation or use of electric current.

Let the baldest facts speak for themselves. First, take the official report of Fire Commissioner Johnson to Mayor Gaynor:

"January 11, 1912.

"HON WILLIAM J GAYNOR,

"Mayor, City of New York.

"SIR:—The official investigation of the Equitable Building fire, in which Battalion Chief Walsh and at least six others lost their lives, reveals pretty certainly that this disaster was caused by the careless throwing away of a match.

"The careless dropping of a match or lighted cigarette undoubtedly caused the Triangle waist factory fire. It appears, therefore, that two of the worst fires of the decade started in this manner.

"The fire marshals' reports indicate that in 1910, out of 14,405 fires, 2,210 were caused by the careless use of matches."



Another striking phase of the situation is shown in the statement of Arthur C Davis, chief engineer of the Equitable Building:

"My first thought was of the boilers. There are seven 125 horse-power boilers in the basement of the building and each boiler was carrying about eighty-five pounds pressure. I realized that if those boilers let go there would be a death list that would be too terrible to think about."

No stronger evidence of the danger involved in the installation of an isolated plant could possibly be produced than this statement of the engineer in charge of one.



The difficulty experienced by the firemen fighting the Equitable fire, without the assistance of high-pressure apparatus, shows clearly the need for the extension of the high-pressure zone to all territory occupied by tall buildings.

Readers will be interested to know that The New York Edison Company, which supplies current to the pumping stations, in its contract with the city agrees to forfeit \$500 per minute in case there is interruption of service.

Such an agreement manifests plainly the confidence which the Company has in the absolute reliability of its service, and it should not be forgotten that automatically the benefit of this guarantee extends to every consumer.



After the open-air school comes the electrified classroom. This latest educational innovation is a German device. Having noted the beneficial effects of electric radiation upon the growing plant, the German scientists with a thoroughness "echt deutsch" are proceeding to see if a similar treatment will not cause the young idea to shoot more rapidly.

The results are said to be favorable, the reaction ascribed being "acceleration of physical growth and mental stimulation, resulting in more

active response to intellectual instruction." On pondering these words it certainly sounds as if that one little electric wire undoubtedly had considerable effect.



Among the numerous electrical devices now on the market is a dishwasher, which boasts the rather startling name of "Fearless." As yet, we understand, this comes only in sizes suitable for hotel, restaurant or institutional use. Eventually, there will be a type of family size. But before that happy time, we warn the manufacturer to choose another name, for it is morally certain that no hausfrau would trust her best beloved dinner-set to the tender mercies of any washing machine that answered to the name of "Fearless."



At last the electric vehicle has attained true eminence. One has been "pinched" for speeding and its startled driver relieved of ten dollars by an unrelenting magistrate. True this all happened down in Washington, D C, but even then the complaining policeman insisted that the car in question was exceeding the maximum speed permitted by nine unlawful miles.

The manufacturer of this unrighteous vehicle is not overwhelmed by the unsought greatness unexpectedly thrust upon him. He is bearing that ten-dollar fine like a man, and some people do say that he is even advertising it.





**St Patrick's Cathedral Outlined With 40,000 Lamps in Honor of the Home Coming of Cardinal Farley.  
Eleven Thousand Bulbs Were Used on the Facade**

## Cathedral Illumination for Cardinal Farley

**O**NE of the most notable aspects of the great welcome given Cardinal Farley on his return from Rome last month was the superb illumination of the Cathedral. Shortly after dusk on Wednesday, the seventeenth, the day of the Cardinal's arrival, the majestic edifice loomed slowly into a marvel of light, and for eight evenings following the city was privileged to see the inspiring spectacle.

The illumination, which was a complete surprise to His Eminence, was accomplished by means of nearly fifty thousand eight candle-power lamps, and was one of the largest projects of the kind ever undertaken. Full twenty miles of wire were used. The lighting was concentrated at the crosses on the tips of the spires which were visible from all parts of the city. Each buttress, pinnacle, and graceful arch of the great church, together with the principal details of its rich architecture, were all brilliantly outlined, as were also the ecclesiastical residences on Madison Avenue. Scarcely an inch of the front and sides of the Cathedral but stood out brightly.

The most marvelous sight, however, was the view from Fifth Avenue, where the facade blazed with eleven thousand lights. Not only were the delicate lines of the twin spires traced in fire but glowing ropes fell from their summits to the level of the Avenue, three hundred and forty feet below. Crossing these, rose the

lofty lines of the gable, while beneath shone out in intricate detail the beautiful rose window, —the admiration of all who visit the Cathedral.

In the space between the central arch and the top of the main entrance appeared a design, a most exceptional piece of work and the crowning feature of the illumination. This was a reproduction in colored lights of the Cardinal's coat-of-arms. First was a circle of lights twelve and one-half feet in diameter, immediately inside of which an equilateral triangle enclosed the arms proper. The shield, adopted by the prelate as archbishop, is quartered by a cross, in the center of which occurs the shamrock. In the fields, which are of blue, appear the eagle of St. John the Evangelist and the lilies of the Annunciation. Backing the shield stands the archiepiscopal cross, now surmounted by the red hat with its fifteen tassels. Beneath the shield is the motto, "Non Nobis Domine," suggesting the beloved prelate's devotion and humility. The colors, to the delight of the designers, blended readily into a magnificent picture.

On the terraces extending the length of the Church numbers of temporary lamp-posts were erected, each bearing five large globes. Between the posts were festooned thick ropes of myrtle, the green looping itself picturesquely about the post tops. Nearer the walls, and in the spaces intervening, waved alternately the papal and American colors, which

were also displayed across the parvis on Fifth Avenue.

In addition, the electricians were called upon for work in the interior. Here the entire lighting system was radically altered, the old carbon

the beauty of the marble altar and reredos.

Wreaths of red with huge quantities of evergreen were employed in interior decorations of rare magnificence. Interlaced branches of green

bearing a large red wreath served as a screen for the choir loft above the Fifth Avenue entrance. Smaller wreaths were mingled with draperies of greenery about the pillars and the high pulpit, while the throne itself was a blaze of red. Behind the throne hung the tapestry presented by the Paulist Fathers in honor of the occasion.

Difficult as was the work of wiring the Cathedral, due both to the great height and the severity of the weather, the most interesting feature of the whole undertaking, from the electrician's standpoint, was the



Over the Doorway of the Cathedral the Cardinal's Coat-of-Arms Was Emblazoned in Colored Light. In Front of the Doorway Searchlights Were Massed

lamps being replaced by modern thirty-two-watt tungstens. The installation, including the seven great chandeliers, consists of twenty-one hundred lamps. Changes were also made in the arrangement of the lights clustered about the columns, which heretofore had proved unsatisfactory. The sanctuary is lighted by lamps concealed behind the piers, accentuating

accomplishment of gradual illumination. Not since the Exposition at Buffalo has this effect been produced. With this in view, nine feeder cables were run direct to a generator in the Edison sub-station at Fifty-third Street and Sixth Avenue. Here the current was started and the lights on the great Church brought from the first faint glow to their highest candle-power.



Arc-Lamp Lighting the Ice Cave at the Equitable Fire

crew immediately appeared and in the midst of no small amount of danger, quickly erected a temporary post, maintaining service in all the lamps in the vicinity. The Thompson-Starrett Company, to which the

## Emergency Work at the Equitable Fire

The disastrous fire which recently destroyed the Equitable Life Insurance Building offered another instance of the emergency work of The New York Edison Company.

Early in the course of the fire falling debris wrecked one of the lamp-posts fronting the building on the Cedar Street corner. An emergency

contract for clearing the ruins has been given, is now using Edison Service, the building's private plant being very much out of commission.



At the Equitable Fire. Falling Stone Snapped off the Street Lamp on the Corner of Broadway and Cedar Street. An Edison Emergency Crew Dug Through the Ice, Found the Arc Lamp Base, and Erected a New Post While the Firemen Were Still at Work





Overlooking Madison Square. This Year's Automobile Show is the Last to be Held  
in the Old Madison Square Garden

## Electrics at the Automobile Show

**T**HE ever-increasing popularity of automobiles was evidenced by a variety of exhibitions all centered around the general "automobile show season" in January. There were no less than three of these displays, including a "salon" exclusively of foreign cars, while a certain electric pleasure-car manufacturer, unable to obtain desirable space elsewhere, went and had a show all by himself at one of the large hotels.

The electric vehicle interests, however, were confined to the two large displays of American-made cars, one at Madison Square Garden and the other at the new Grand Central Palace, where it is now said in future exhibitions the two shows will be combined.

Between the two chief displays there were differences in arrangement and exhibitors that made the Garden and the Palace an interesting contrast. At the Garden, the older scheme of having pleasure and commercial cars shown separately was maintained, while at the Palace the additional facilities of the newer building enabled the management to maintain pleasure and commercial entries at the same time, which, as far as the average spectator is concerned, lends far greater interest and variety to the spectacle. The argument for the other arrangement is, of course, that an entirely different class of buyers and visitors come to see the touring cars and trucks

respectively, and each will be better satisfied to find that kind of motor vehicle exclusively presented.

### At Madison Square Garden

**T**HE electric vehicle exhibit at the Madison Square Garden Show was, as in former years, crowded into the most inaccessible gallery, almost under the rafters, and this without allowing the manufacturers the choice of more attractive space, even if they wanted to pay a higher rate. Five companies exhibited their cars in the space designated during the week allotted to pleasure vehicles.

The Flanders Company exhibited a single car, the Colonial Coupé, seating five passengers. Its speeds vary from one to twenty-four miles an hour and its capacity is from seventy-five to 100 miles on a single charge. The Baker Company had three cars on display—an extension coupé, a brougham of colonial design and an extension brougham, seating five passengers, so that all are facing forward.

Only one car was exhibited by the Grinnell Company, the Model H, extension front brougham, seating five passengers. The show car of the Waverley exhibit was the "Limousine Five," upholstered in brocade, with trimmings of gold plate and ivory. In the exhibit of Detroit Electrics were an extension brougham, a roadster and a two-passenger coupé, with seat for a third passenger.

## The Edison Monthly

The second part of the exhibit, which lasted from January fifteenth to the twentieth inclusive, was designed to be of interest to those concerned with the problems of transportation. Many conceded it to be the greatest display of motor trucks ever gathered together. And never before has the electric side of this immense industry occupied such a prominent place at any exhibition.

Here were to be seen such novel features in the manufacture of self-propelled vehicles, as a water-purifying army-wagon which can be used to produce pure drinking water wherever water of any sort is procurable; tractors and trailers that are over fifty feet long; tremendous brewery trucks; fire apparatus and oil-tank wagons. There can be named hardly any industry requiring transportation facilities into which the electric can be shown not to have made itself of signal service.

The largest amount of floor-space that was taken by any exhibitor was that of the General Vehicle Company. Their exhibit consisted of three five-ton brewery trucks, a chassis, and besides this a couple of three and one-half and two-ton wagons. From this concern the American Express Company has recently purchased twenty-five cars.

The Baker Motor Vehicle Company also had its exhibit at the Garden this year. Under the original plan it was to have consisted of "a household silver-delivery wagon," which they built especially for the Fidelity Trust Company of Newark, New Jersey. However, upon the "First Night" of the show, this unique exhibit had not arrived. In its place,

the Baker Company had borrowed an express-wagon model that they were on the point of delivering to the American Express Company.

At the Garden this year there was also to be found the well-known Detroit exhibit. These people are displaying a thousand pound, a two-thousand pound, and a three-thousand pound wagon, for general delivery purposes.

The Bronx Electric Vehicle Company, undoubtedly the youngest concern manufacturing cars to-day, drew sizable crowds. The principal and individual feature of the exhibit, as it was explained to visitors, was that every movable part of the car was mounted on ball-bearings. As was frequently demonstrated, the four-ton machine could be swung backwards and forwards with slight pressure from one hand.

The only electric car manufacturers who have what is known as a "quick-break emergency switch" is the Lansden Company, which also is exhibiting at Madison Square Garden this year. The switch in question is said to give absolute protection from ruining batteries by carelessness in starting or charging at the wrong time.

At last the electric limousine has made its appearance! This innovation was to be seen at the exhibit of the Waverley Company and consisted of a five-passenger car in which the driver occupies the front seat in such a position that no one may shut off his full view ahead. This company is also exhibiting, among its standard trucks, what it calls a commercial adaptation of the pleasure vehicle. In appearance this



**Cars at the Garden Show. Reading from Left to Right, Detroit Ambulance, Ward Delivery Wagon, "G V" Truck, Detroit "Model 30," Baker One-Ton Wagon, and Studebaker Three-and One-half Ton Truck**



machine looks like the ordinary "runabout" type of roadster, which may be used with closed body in winter and open body in summer. It sells at \$2000.00 and is intended for use by salesmen, central station men, linemen, or professional people generally.

To one who has watched the growth of the self-propelled vehicle industry, from its earliest conception to the present day, there is to be seen much that is marvelous. In the words of Col George Pope, "I can recall how, at a bicycle show in Madison Square Garden, there was a 'horseless carriage' exhibited. That was what they were called in those days—'dangerous contraptions'"—and now, this last exhibit of automobile manufacturers has just written the latest chapter in the history of what has grown to be one of the greatest industries of the present day.

### The Palace Display

THE third and last automobile show for the season of 1912, proved especially brilliant, not only from the standpoint of appearance and attendance but also in the amount of business done by exhibiting manufacturers. In less than three hours after one company had opened its exhibit, orders for more than twenty-five cars were secured.

As usual, many of the makers exhibiting at the Palace have their headquarters in the West, and among them are to be found some important firms, well-known in their own locality, but hitherto not so widely heard from in and around New York. Unlike the Garden Show, commercial vehicles were on exhibition at the same time with the pleasure cars.

The Argo Electric Vehicle Company, which has its factory and gen-



At the Palace Show. Pleasure Vehicles Occupied the First Floor



**Electric Cars at the Palace Show—The Hupp-Yeats, Standard, Columbus, Argo, Walker and Ohio**

## The Edison Monthly

eral offices in Saginaw, Michigan, made its debut in the East with its Model "A," a 3,200-pound brougham, equipped with exide lead batteries, and selling for twenty-eight hundred dollars. Besides this car they had on exhibition a one-ton commercial wagon. One of the two special advantages this company claims for its cars is the simplicity and reliability

the curved glass effect on either side of the fore part of the carriage, no refraction interferes with the driver's vision.

Especially noticeable upon the second floor, among the commercial cars, is the Walker. This vehicle is of the internal-gear-drive type, which, of course, acts upon the principle of a motor incorporated into the rear

axle and driving directly therefrom by means of a pinion and two gears against the inner rim of the rear wheels.

Perhaps the first magnetic-disk-control that has so far appeared among automobiles is found on the Ohio. This is a patented feature, for which great flexi-

bility and economy of operation are claimed. These manufacturers have also gone to the extent of placing upon their car a full floating rear system.

For those who can afford it, undoubtedly the Hupp-Yeats "De Luxe" Model is the last word in luxurious cars. It is equipped with Colonial lights and six inches deep



The New Rauch and Lang Coach Model

of its complete foot control, and in the pleasure vehicle the appearance of the rear, which is not disfigured by the usual projecting box.

The Columbus Buggy Company, makers of the Firestone-Columbus Electric, pointed this year with special pride to their Model "No 1222." It is the first underslung electric yet produced; and it is asserted that by



Seating Arrangement of the "Limousine Five"

upholstery; ivory and gold interior fixtures have been designed to harmonize with this, and, as an added attraction for those to whom the word price has no meaning, the wheel-caps and running-board carry a gold plating heavy enough to be guaranteed for ten years.

In fact, the electric may now be said, in general at least, to possess more of these luxurious trifles than the gasoline: parasol and umbrella holders, many of them ivory or gold; toilet sets, card-cases and hand mirrors in nothing less costly than gold or silver plating; foot-warmers, these

and thousand and one other things that by some are considered foolish, while by others very desirable luxuries.

An independent exhibit of Rauch and Lang Electrics was given in the Turkish Room at the Waldorf-Astoria from January 6th to the 15th. This break from the Garden and Palace shows was decided upon as a result of the small space allowed electrics.

Among the cars on view was the coach model, seating five passengers, facing forward. Provision is made for a collapsible compartment, to isolate the chauffeur's seat. An innovation for this season, it is only found in three or four makes of electrics. Other models exhibited were the Club Roadster, a brougham, and a demi-brougham.



The Waverley "Limousine Five." Typical of the New Luxurious Electric





The Sterling Bronze Company Building. Edison Service Supplies  
Current for 2,000 Lights and 230 Horse-Power in Motors

### A New Building for the Bronze Trade

THE Sterling Bronze Company now occupies a new building at 16-18 East 40th Street. In striking contrast with former facilities for conducting the firm's affairs, is this modern twelve-story structure, in which every branch of the business is carried on. The building was finished last April, and runs through from 40th to 39th Street. Several of the floors have been rented to tenants in various lines of business to be used as salesrooms, while the Sterling Bronze Company occupies the basement, first, second, ninth, tenth, eleventh and twelfth floors. On the first or ground floor are the showrooms, where are displayed the products of the company's craftsmen. Beautiful brasses, fixtures, bronze statues and lamp shades are among the wares

exhibited here to the public. The basement is devoted to the work of shipping and receiving while the second floor is occupied by the executive department.

The top floors are given over entirely to the factory requirements of the company, for here are manufactured all goods that are on display on the first floor, as well as the entire output of the company. The building is lighted by electricity, and current is used for all power purposes, the supply being received from the mains of The New York Edison Company. The installation consists of 2,000 lights.

Bronze is a reddish yellow, fine-grained alloy of variable proportions of copper and tin. Its use antedates iron, having been made during the Stone Age, and was probably the first metal which, according to archaeologists, the ancients were able to work. In fact, the brass usually spoken of in connection with prehistoric man was in reality bronze. So great a part did this metal play in the history of the time that a certain period is referred to as the Bronze Age. Although there has been some dispute about this, the commonly accepted theory places this period between the Stone and Iron Ages.

At the present time bronze is largely used in casting bells and gongs, in the manufacture of mathematical instruments and machinery, for casting statues and tablets and ornamental figures, and at one time was used extensively in the casting of ordnance. For gun making, the proportions of copper and tin were ten to one; for instruments, twelve to one, and for bells

and gongs from three to six to one.

For a number of years it has been the practice to manufacture imitation bronze articles. Indeed, very few of the cheaper ornaments and fixtures used for decorative purposes are of the pure composition. An electrotype process has been devised by which bronze may be deposited in coats of varying thickness after the object has been cast in a cheaper metal. Parts of machinery which are liable to rust are also subjected to this treatment.

Plaster and clay figures, articles of ivory and wood, as well as the metals, may be "doctored" to give the appearance of bronze. For the finer grades of this work a gold powder is used. The German gold powder sometimes employed is obtained from an inferior grade of gold lead which contains quantities of silver and copper. In bronzing materials, other than metals, the material is applied with a brush, after which it goes through several processes of burnishing and finishing. To give his product the appearance of antiquity, the unscrupulous modern dealer applies a solution of sal-ammoniac, cream of tartar, salt hot water and nitrate of copper.

"About one-third of a man's time is spent in asking questions that never should have been asked."

"You will blush to have it thrown up to you, but all of you have kin you do not like."

"When a man begins by saying, 'Of course it is none of my business, but—,' it is a sign he is going to make it his business, and advise you what to do."

## The Kesner Equipment

**A**MONG the strongest advocates of the use of electricity for all purposes at the present time are the large department stores of New York. From time to time

it runs the elevators, conveys the parcels, examines eyesight, presses clothes, cooks, makes hot chocolate for the soda fountain, washes dishes, saws ice, ventilates, bales the waste



The J L Kesner Company Department Store, at Sixth Avenue and Twenty-third Street. A Private Generating Plant Was Taken Out of This Building, Which is Now on Edison Service

THE EDISON MONTHLY has printed articles describing electrical features of these great institutions which, in themselves, are small cities. Another big department store is now added to the list of those in which electricity does almost everything but sell the goods and count the money. Besides furnishing the light

paper, and a number of other things besides.

Although comparatively new to New York, the J L Kesner Company has for some time been prominent in the dry goods business in Chicago. In coming to New York the Kesners took over the property on the southwest corner of Sixth Avenue and

Twenty-third Street, which has long been known as the Ehrich building. It was at this location that Mr Ehrich made the fortune that enabled him recently to retire a millionaire. After making extensive alterations, the Kesners re-stocked the store and opened for business on October 28, 1911.

During the Ehrich occupancy of the

previous experience with a private plant in Chicago. Not only did they find it more expensive, but thoroughly unreliable and a continual nuisance.

The lighting system of the building is very well arranged. On the main and second floors, 100-watt lamps with Alba reflectors have been adopted and placed at a uniform distance of  $9\frac{1}{2}$  feet from the floor.



**The Main Floor of Kesner's Department Store. Tungsten Lamps are Used in Alba Reflectors Placed Nine and One-half Feet Above the Floor in Order to Obtain the Best Distribution of Light**

building, the electric current employed was generated in the cellar by a two hundred kilowatt capacity private plant. When the new owners took over the building, they were obliged to buy from their predecessors this private generating plant, which, without ado, they promptly put out of commission, connecting their building with the mains of The New York Edison Company. It seems that Messrs Kesner had had

This gives plenty of well distributed light over the divisions where it is needed. In the basement and on the third, fourth and fifth floors light is furnished by the indirect method, 400-watt lamps being used.

Perhaps the most interesting electrical feature of the store is its optical department. In the darkened rooms of the optician are a number of the newest contrivances for testing and examining the eye and for cor-



recting ocular defects. The store has one of the largest equipments of electric flatirons in the city. Forty irons of different sizes and types are kept busy pressing everything, from men's suits to the finest chiffon and lingerie.

In a section of the basement is the electric parcel conveyer, which is the beginning of the delivery system. After the parcels have been deposited in bins they are placed in hand carts. A motor-driven escalator takes these to the sidewalk where the delivery wagons are waiting. In the basement



The Parcel Conveyer at Kesner's, Operated by Electric Motors. The Parcels are Taken from the Conveyer and Placed in the Various Bins

is a machine which presses waste paper into bales, driven by a three horse-power motor. Twenty little motors of one-eighth horse-power each operate the ventilating system, and a number of sewing machines on the premises have individual electric motors attached to them. A dish-washing machine, an ice saw

and a pipe cutter are run by motors, while at the soda fountain there are two electric heating units of nine and six amperes, besides a five hundred watt stove that is used in the drug department.



The Restaurant on the Fourth Floor of the Kesner Store

## Some Old Customers

**T**IME has indeed worked wonders upon many parts of New York City. From a tangle of undergrowth and rocks have sprung marble and gilt structures; where not so long ago smoked quaint Dutch chimneys, have arisen the tallest points on the world's skyline.

Perhaps no section has more successfully escaped the marvelous changes wrought all about it than the district around old Fulton Market. Queer little brick houses, many of them a century old, still stand, their toppling chimneys supported by iron braces, and their once trim fronts now irregular and dilapidated. Old Fulton Ferry, through which once surged the rush-hour crowds, is now all but deserted. In places, its heavily planked floors have worn thin, under tread of thousands, hurrying feet of yesterday. But new methods of moving the crowds over and under the East River have left but small use for the plodding old ferryboat.

Before the building of the first bridge, Fulton Street was one of the busiest in the city. The home-bound throngs poured down this broad thoroughfare and fortunate indeed was thought the merchant whose business was located there. Then came the great change.

It was in this section of New York when at its height that Thomas A Edison laid out the first interior electric lighting system in the world for commercial purposes. The New York Edison Company, the successor of

the Edison Electric Illuminating Company, was the first corporation ever organized to do incandescent lighting on a permanent basis. The territory the company first supplied, about a mile square, extended from Wall to Spruce Street and from Nassau Street to the East River. The distributing system in this district was developed by Mr Edison personally. For many months, day and night, the work had his constant and direct supervision.

The site of the old Pearl Street station, a lot 50 x 100 feet, was purchased in May, 1881. The original station was four stories high and when started contained sixteen units



The Hardware Store of J T Pratt and Company, Fulton and Cliff Streets. Established Here in 1857. One of the Oldest Customers of The New York Edison Company

## The Edison Monthly



**Where Aristocracy Once Dwelt—a Very Old Residence Near Fulton Ferry in Which Sweet's Restaurant is Now Located**

—the historical "Jumbos." The underground system was connected and tested during July, until on September 4th, 1882

at three o'clock in the afternoon, the station was placed in permanent operation.

It was not until February, 1883, six months after the current was turned on, that any charge was made. There were two rea-

sons for this; the first being that business men then regarded electric light in the nature of an experiment, and the other that Mr Edison had not yet applied himself to the invention of a contrivance for measuring current.

So it was that the first users of electric light were the business men in the neighborhood of Fulton Ferry. How old Fulton Street must have beamed with its electrically lighted shop windows on that night of September 4th, 1882. What an excitement there must have been as the crowds passed up and down looking with wonder on such a sight. And what a busy evening Sweet's Restaurant, Fulton and South Streets, must have had, for everybody was fond of dining in Sweet's and it was all aglow with the new illumination.

Perhaps no other place that is still doing business bears so much of the atmosphere of other days as does this quite renowned little eating place. It was founded in the early part of



**One of the Dining Rooms in Sweet's Restaurant, Famous for its Fish Dinners. Many Notables Have Dined Here in Days Gone By**

the past century at Number 10 Fulton Street by A M Sweet, the father of the present owner. The stage coaches for "uptown" and Harlem used to leave from its doors, and although these antiquities have long since gone out of existence, the fame of Sweet's fish dinners is still alive over Manhattan Island.

Even though the traffic which once was Fulton Street's has been taken by the bridges and the tubes, apparently it has made no difference at Sweet's.

The waiters are just as busy, the fish just as tasty and the cooking just as home-like as in the days when Henry Ward Beecher, Edwin Booth, Joseph Jefferson, and other ministers, actors and famous

statesmen partook of refreshment at its board. Here, it is quite usual for waiters to remain twenty-five or thirty years; in fact, the late head waiter, a Southern dorky, born in slavery, kept his place for fifty-three years.

Passing up on Fulton Street under the elevated structure and into the narrower part one comes to the hardware store of J T Pratt and Company, at Fulton and Cliff Streets, established in 1857 on exactly the same spot.

The building in which the store is located was once a very prepossessing residence—one of the oldest in the neighborhood. The firm of J T Pratt and Company was among the first Edison customers. Like others, in the beginning they were inclined to be skeptical about electric lights. That they were convinced of the practicability of the experiment is evidenced by the fact that electricity still prevails with them. Much of the old wiring is still in use, a switch



Fulton Ferry, Which Was Once the Principal Means of Transportation Between New York City and Brooklyn

and several fuse boxes of the most primitive types being but recently replaced by modern ones. An old lighting permit bearing the date 1884 is carefully kept in the safe.

Perhaps one of the most interesting of all the old customers is Mr John C Hartfield, the noted inventor of telegraphic and cable codes. Mr Hartfield is the head of the Hartfield Telegraphic Code Publishing Company at 73 Pearl Street, which he founded in 1877. In that year he perfected



## The Edison Monthly

the "First Merchants' Code" of 15,000 words, which was probably the pioneer of all commercial codes. Since then he has constructed codes containing several million words. His son, Mr John W Hartfield, is associated with him in code making and is now working on a "Wall Street" code, soon to be published, which will contain upwards of a million words.

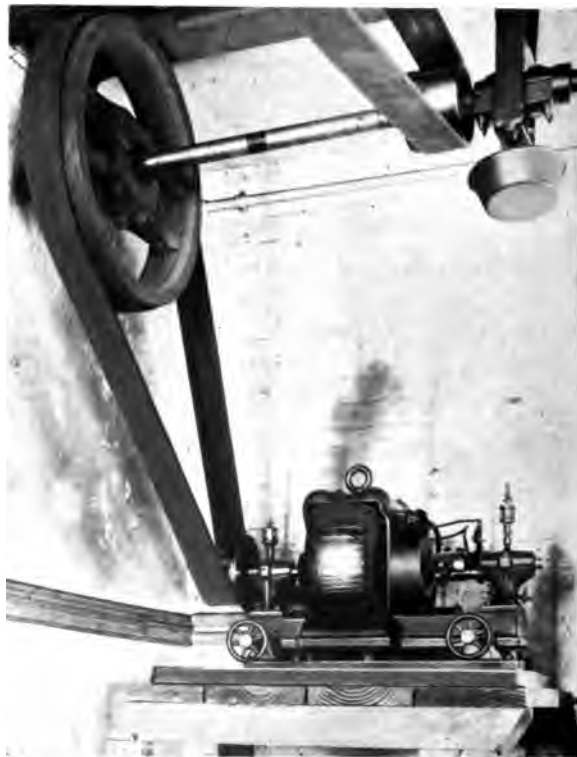
The Hartfield concern does its own printing and thereby hangs a tale. A while ago the Power Bureau of The New York Edison Company received a telephone call from Mr Hartfield in regard to the motor which runs his presses. In answering the question of how long the motor had been installed Mr Hartfield was heard to make the astonishing admission, "Since 1889."

"And what did you say was the matter with it?" asked the Edison man.

"Why, I think the commutator is a little worn," was the reply. To get the full humor in Mr Hartfield's answer one must remember that this motor had been running continuously for twenty-two years, at the end of which period it would have been not at all surprising if something

besides the commutator should have been "a little worn."

The motor itself is a five horse-power C & C, and was purchased for \$350 in 1889 from The Edison Electric Illuminating Company at the old Pearl Street Station. Although rated at five horse-power it has a capacity of fully seven, which is due to its having been wound by hand. It is now working away as busily as the day after it was installed, and from that time to the present, including the last fixing up, only \$112 has been spent on it for maintenance and repairs.



**This Remarkable Little Electric Motor Has Run the Presses of the Hartfield Telegraphic Code Publishing Company for Twenty-two Years and is Just as Good as Ever**



The Landscape-Gardener with his Chrysanthemums. Left, the Electrically Grown Plant; Right, a Smaller One, Produced by Nature Unaided

## An Experiment in Horticulture

THE use of electricity to hasten the growth of plants is not in itself new, for efforts in that direction have been made during the last two decades. These have had, until recently, far more practical success abroad than in this country, where experiments have been conducted upon the farm maintained for that purpose by the Department of Agriculture at Arlington, Virginia.

Still further trials with high frequency currents have been made by a landscape gardener of Evanston, Illinois, under the direction of Washington experts. The general theory seems to be that electrical radiation has a stimulative effect similar to that of the sun.

These particular experiments, conducted by Mr Richard Gloede of Evanston, have been described by the *Electrical Review and Western Electrician*.

A single galvanized iron wire was placed in the soil of the hothouse beds, while about four feet above the "bench," as it is technically known, a network of wires was placed. Very high voltage and frequency were used, producing electrical field in the space occupied by the flower beds. The current was received at 110 volts and 60 cycles, and was transformed to 250,000 volts and 600 cycles.

The results obtained under these conditions were striking indeed. Two chrysanthemum beds were arranged exactly alike in every way, except that one was wired for electricity and the other not. In the non-wired "bench" were placed select and hardy shoots, while weak plants, discarded from the first lot, were put in the "electric bed." These, in spite of their handicap, progressed rapidly and became much hardier than the choice naturally grown plants.



The Greenhouse of Mr Richard Gloede, Where, Under the Direction of the Department of Agriculture, the Experiments Were Conducted

## The Chinese Reform News

FROM the most primitive of presses to those with "all the modern improvements" runs the history of printing industry in China. Perfectly in keeping with the part that country has played in the development of the art are the many Chinese publications,—dailies, semi-

tial Kingdom" a thousand years before, while the invention of paper, another Chinese accomplishment, dates back more than twenty centuries. Before the days of the press, paper, or even ink and brush, the Chinese had a means of written communication,—carving their messages on pieces of bamboo.

In many cases Chinese papers, both at home and in foreign countries, are published by the Chinese Empire Reform Association and so are devoted to the cause of constitutional reform in the Empire. It might safely be said that the spreading



The Chinese Linotype Machine. There are More Than Seventy Thousand Characters Distributed in These Racks. A Typesetter Soon Becomes a Trained Pedestrian

weeklies, weeklies, and monthlies,—in the journalistic world to-day. These are published not only in the Empire itself, but also in almost every city, the world over, that boasts a Chinese settlement.

More than five hundred years ago the first newspaper was published in China and was the medium employed by the Emperor to bring royal edicts before the people. Printing presses had been used throughout the "Celestial Kingdom" a thousand years before,

while the invention of paper, another Chinese accomplishment, dates back more than twenty centuries. Before the days of the press, paper, or even ink and brush, the Chinese had a means of written communication,—carving their messages on pieces of bamboo. In many cases Chinese papers, both at home and in foreign countries, are published by the Chinese Empire Reform Association and so are devoted to the cause of constitutional reform in the Empire. It might safely be said that the spreading of the association's propaganda by means of these newspapers had much to do with the present uprising. In fact, it was only in an effort to quell this uprising that the State lifted the ban from Kang Yu Wei, president-general of the organization of 200,000 members, permitting him to return from a thirteen years' exile to his own country, although he has not yet availed himself of the privilege. The revolution and overthrow of the

Manchu dynasty, with the election of Dr Sun Yat Sen to the presidency of the new republic, is the direct outcome of the propaganda of the Chinese Reform Association.

With the possible exception of the *Chinese World* of San Francisco, the *Chinese Reform News*, published twice a week at 176 Park Row, New York City, is the largest and most influential Chinese paper in this country. Its editor is Kung Y Sang, a student of the old school, and the assistant editor is Khong Loy, a graduate of the New York University. The equipment of the plant is modern in every respect, except that the type is set by hand. No linotype machine will ever drive out the Chinese typesetter, for in the type font there are more than 70,000 characters,

each character representing a word or phrase. Such type is imported from China.

With this one exception, the Chinese print-shop methods are those of the most up-to-date jobber. The typesetter sets his characters in a modern "stick," locks his type in a modern "form," makes the latest typographical errors, and prints his paper on a modern press. It is folded by a modern automatic folder, and even

directed to the subscribers by means of a modern addressing machine.

In addition, the Chinese editor uses the most modern power of all--electricity --to drive his presses, to light his composing and press rooms, and even to boil the tea which he continually imbibes in the rush of getting the edition to press.

According to the results of the thirteenth census, the number of



The Press Room of the Chinese Reform News, Where Two Editions are Printed Each Week. All the Machinery is Motor Driven

electric vehicles manufactured in the United States in 1909 was 3,639, having a value of \$6,564,500, which is an increase of 160 per cent. over the corresponding figures for the previous census of the year 1904.

The electrical works of Vienna are offering, free of charge, to the members of the Bakers' Association, electric ovens, guaranteeing no increase in working cost.



## Up-Town Entertainment

A STEADY drift toward the north, made necessary by the narrow confines of the Borough, and encouraged by the improvements that are steadily being made in transit facilities, has characterized the various social and commercial centers of the city during recent years.

In fact, the financial interests in Wall Street is the only one of the

served only the visitor in the town, or the play-goer after the theatre, it now caters to apartment-house dwellers in a marked degree. A number of restaurants have been opened recently for this trade. One of these is the Carlton Terrace at Broadway and One Hundredth Street; while another style of eating-place, serving the same general purpose,



**The Carlton Terrace Restaurant, Showing the Flowered Ceiling and the Oriental Decorations.  
Electric Bulbs are Concealed in Each Blossom**

city's business features that has not changed its locality. Dwellings of old New Yorkers have been converted into business houses, and in place of the stately "brown stone" of 1880 has come the apartment house and the apartment hotel.

Where the restaurant formerly

but conducted on entirely different lines, is the Idle Hour Tea Room in the Bronx.

Just a hint of the modernization of old Japan is felt as one enters the Carlton Terrace. Japanese lanterns light the rooms, a flower-decked trellis hides the ceiling, and panels

of bas-relief are at either end, while chimes sound from one of the galleries.

In contrast with the oriental atmosphere are the many modern appliances: a powerful exhaust fan keeps the air pure, the chimes are played by electricity, and all the lights in the place are electric. There are more than two thousand bulbs in the restaurant and garden. Some are concealed, others are in flowers,

nothing stronger than tea is served.

The Idle Hour was opened last June, and was one of a chain of six similar places, all of which began business during the past year. After a very brief career, the proprietor went into bankruptcy and the receiver's manager introduced several innovations, among them an orchestra, while guests are permitted to take part in the entertainments on Wed-



**The Idle Hour Tea Room in the Bronx**

five hundred are in signs, and still others light an electric fountain, or are concealed in various ways about the groups of statues in the garden.

Altogether apart from this type of restaurant is the Idle Hour Tea Room in the Bronx.

Strange as it may seem, the Idle Hour does its greatest business in the after-theatre hours, or from 11 P M until about 2 A M, although

nesday and Saturday nights. Now the room is crowded every evening. Pastry, ice-cream soda with sandwiches, tea and coffee, make up the menu of this unique refreshment parlor. All of the food stuff is prepared on the premises. Motors are used to run the ice-cream freezers and other appliances in the kitchen, and the tea room is brilliantly illuminated by clusters of tungsten lamps.

## House and Office Appliances

"IN dreams," once wrote Jerome K Jerome, "we see the light that never was on sea or land, we hear the sounds that never yet were heard by waking ears. In these prophesied Utopias everybody is painfully good and clean and happy and all the work is done by electricity. There is somewhat too much electricity, for my taste, in these worlds to come."

That having been written twenty years ago, one hardly likes to picture the author's frame of mind should

Mr Jerome find himself in the Company's show-room, surrounded by nearly a thousand devices for doing all kinds of work by electricity.

Persons dealing with a certain business daily are oftentimes not thoroughly conscious of its growth and progress; the slight increases as measured week by week frequently do not loom startlingly large. Accordingly, it was somewhat of a surprise to learn that there were no less than nine hundred and sixty-three pieces of apparatus on view in the Company's showrooms.

This does not represent, of course, such a number of applications, there being in many cases several types for a particular device shown. Lamps there are, inevitably, of all sorts; portable, dome-lights, sign-flashing lamps, desk lights, and night lights; business and decorative lamps, each with its own special advantage.

A novelty, however, is found in a storage battery type, designed as a safety device for mines and store-houses. The source of current is a storage battery composed of silver and cadmium plates in an alkaline solution, strongly built for careless handling. The lamp bulb itself is a sturdy type of tungsten with an anchored filament, capable



Desk Lamps of Various Types are Among the Most Popular Displays in the Showroom—This Illustration Presents the "Emeralite." The Bulb Has a Green Glass Shade

of withstanding almost any shock and jar. The glass front, protecting the bulb, is so extremely heavy that any ordinary blow would fail to break it. Even should this occur, a feature of the wiring would prevent a spark. Not only has this storage battery lamp been adopted by some seventy coal mining companies, but it has recently been accepted by the New York Board of Fire Underwriters for use in storage warehouses.

Another sort of electrical apparatus that has come prominently to the fore within the last year are the ventilating devices. Not so many years ago an old farmer in Vermont, on whose rather primitive dairying methods some summer visitors had looked askance, retorted that things was gettin' so partic'lar these days 'twouldn't be long before you had to strain the air for some folks.

The real ventilation advocate of the year of grace 1912 does not pause at straining the air. Some draw it in, wash it, whirl it round as in some kind of centrifugal cleansing process and then send it out again to a grateful public. Others disinfect it, by



The Storage Battery Lamp, a Safety Device for Mines—The Hubbell Lantern is Also Recommended for Warehouses

generating an amount of purifying ozone. In fact, there seems to be no limit to the ingenuity of the different fresh air purveyors now placed upon the market. Splendid results are said to be obtained by all the methods.

One is told that a certain bank, on installing a new ventilating system, had their office force examined. Then, after breathing ozonized air for a year or so a second measurement was taken, by which it was proved that the clerks working



The Ozonizer, One of the Many Ventilating Devices Now on the Market



in this scientifically ventilated bank had improved in stature if not in wisdom. Seriously speaking, there can be no doubt that the public demand for good ventilation has increased remarkably within the last year.

No less than thirty vacuum cleaners attest the increasing vigor with which housewives are battling against their ancient enemy, the dust; while washing machines, cooking devices, motor-driven sewing machines, bread crumbers, radiators, vibrators, fans, water heaters, hair dryers and floor polishers all go to show that electricity has entered the home to stay and that the uses already recorded only serve to open the way for an ever-increasing variety of labor-saving devices. Prophesying is an extremely uncertain pursuit, but with this array of electric assistants, it seems fairly safe to predict that the next ten years will bring about a most startling change in the mechanics of housekeeping.

### An Electric Sealing-Wax Melter

**A**N entirely new and novel heating appliance has been placed on the market within the last few weeks. This is an electric sealing-wax melter, which not only keeps the wax in the proper molten condition, but also embodies a mechanical contrivance for dropping it upon the object to be sealed.

Probably because the sealing of each single package means such a slight and entirely mechanical performance, no attempt has ever been made previously to reduce this task to its simplest and quickest terms. Generally speaking, the primitive method prevails, a stick of sealing-wax being held in a flame until sufficient has been melted to make one or more seals. Meanwhile, the wax may take fire, or what is more likely, the molten material is spattered in drops all over the desk, table,



The Duntley Washer. The Air is Drawn in, Washed, and the Purified Product Sent Out with the Proper Percentage of Moisture

or package. A slight improvement on this is the vessel with a flame under it, the wax being dipped out with a ladle. There is, of course, the same danger of fire, while it is still more likely that a liberal quantity of wax will drip from the ladle.

The new electric device managed by the Rex Sales Company, overcomes both of these troubles, and is in addition infinitely quicker. The pieces of sealing-wax are dropped in the heater, the melted material flowing through a strainer to the bottom of the containing vessel. Here, a slide-opening is manipulated by a lever, so that the operator can regulate exactly the flow of wax.



**The Electric Sealing-Wax Melter and Dropper. Quicker and Safer Than Any Other Method**

The handle of the melter contains the heating unit, while the amount of current used is regulated by a rheostat, in turn screwed into the lamp socket. After the wax has once been melted, a very slight amount of current will keep it at the right temperature and prevent overheating.



**A Group of Electric Cooking Devices**



The Illustrations on This and the Following Page Show Posters Arranged by the Electric Supply Publicity Committee of London, to Call Attention to Those Features of Electric Service Which Appeal Particularly to the English

## Our English Cousins

**A** PREVIOUS issue of the MONTHLY noted the sudden "boom" which things electrical are taking over Europe and especially in England. One of the important agents in this respect is the Electric Supply Publicity Committee, a central organization which undertakes advertising campaigns for a large group of English light and power companies.

One of their most effective publicity schemes is the use of posters and cartoons, three of which are here shown, drawn especially with reference to the local needs and demands. These cartoons are in a style which has not yet been used in this country for central station advertising, but which has proved effective across the water.



The Englishman is Assured That His Pocket-book Won't Suffer Unduly



Note the Famous London "Bobby" in His Favorite Attitude

It will be noted that each of the illustrations appeals to some particular situation in English home or business affairs. The radiator, for instance, is advocated as a substitute for the famous English open fire, which always reads so fine and warm in books, but which visiting Americans find rather inadequate to overcome the rather chilly dampness characteristic of the British climate.

The slavey who does all and everything for a very meagre pittance is another familiar article of English literature, but from these cartoons it now appears that the good old days are past and that the housemaid now rebels against carrying coals to the fourth floor front. The real marvel to American housewives is that the slavey remained submissive as long as she did.



## Central Park Lighting

**A**LTHOUGH the laying out of Central Park was started away back in 1857, more than half a century elapsed before the matter of a thorough system of lighting for this

of Welsbach naphtha lamps. There were only four hundred of them and they were almost completely swallowed by the eight hundred and forty-three acres, of which four hun-



Central Park Mall at Night, Special Tungsten Illumination

vast city property was given serious consideration. The greater part of the fifty years may well be said to have been Central Park's dark ages, for it was black as wilderness except on those nights when the moon cast its soft spell over ramble and mere.

Toward the latter part of the long period of darkness little spots of light sprung up here and there in the form

dred are forest. These few were the only lights in the park until the end of the year 1909.

Thus Central Park became the haunt of evildoers, all manner of criminals finding shelter in its darkness. The police encountered endless difficulties and it soon was unsafe to enter the park at night. After this state of affairs had existed for some time it

was decided that the only remedy was proper lighting.

This proved no small commission, even to illuminating experts used to handling similar problems. Never before had so great an area of park space been electrically lighted, for Central Park is one of the largest city grounds in the world, the largest being a Danish park with an area of 4,200 acres.

On Christmas Eve, 1909, all had been completed, and when the current was sent through 1,550 new tungsten lamps Central Park became the most finely illuminated park in this country, and perhaps in the world. It is also the first park in this country to be lighted by means of tungsten lamps. The lamps used range from seventy-eight to ninety-two watts each. There are more than two hundred miles of underground cable throughout the 843 acres, and great difficulty was experienced in laying them. In the words of the engineer in charge "it was like trying to wire a mountain." The cables employed are lead covered and steel banded and are connected directly to the lighting

mains. All of the lights are controlled from seventy switching points, the number of lamps on a circuit varying from ten to forty.

The general scheme of lighting was accomplished after careful observations and special candle-power tests to determine a type of lamp that



A Street Corner in Berlin

would be satisfactory as a universal lighting unit to meet the many peculiar conditions encountered. Numerous localities were made the objects of special study to secure the best lighting results and the design of post which would accord with surroundings.

## The Edison Monthly



Lower New York from the Brooklyn Bridge Tower



# THE EDISON MONTHLY

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# Editorial

## *The Edison Monthly*

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Recent issues of the *Century* have devoted several pages to various phases of cookery, as an important element of national progress and well-being.

In the third of these the author, Mr Henry T Finck, discusses the probable effects, physiological and social, of the application of electricity to cookery. This portion of Mr Finck's discourse appears elsewhere in these pages.



Two points of the discussion, however, call for editorial comment. As a means of reducing the amount of current consumed, the author suggests the combination of electricity and the fireless cooker principle. This, voiced by Mr Finck as a mere possibility for the future, is already a fact. "Electric fireless cookers" were put out by several manufacturers, more than sixteen months ago.

Another recent electric cooking development, with which the author is evidently as yet unacquainted, is the "storage battery range." This, attacking the problem of high current

consumption from still another angle, would doubtless be of interest to the author. A few years should find both of these electric cooking devices entering largely into the working out of domestic economy.



Not only are questions of physical welfare involved in an electrical solution of the problem, the author realizes. "Instead of feeling like a drudge in a smoky, smelly, overheated kitchen," writes Mr Finck, "the housewife and the professional cook of the future will have the dignity of workers in a clean, cool laboratory for the scientific preparation of savory food."

Now in the *Edison Monthly* of January, 1911, was an article entitled "Electricity as a Social Leveler," in which the lack-of-servant problem is treated as a social rather than industrial one. In this connection, a few sentences seem particularly apt. "The question of caste is largely one of appearance—the poorest stenographer is a lady, because in so far as her stipend permits she dresses like a lady. Accordingly, she looks down upon the cook drawing the same wages and "keep," because the cook works with red face and streaming hair over a hot stove.

"With electricity at work in the home, however, this social inequality will disappear; the girl can do the cooking, the washing or cleaning without loss of caste. She can wear the



same dress while guiding the vacuum cleaner that she can in presiding over the glove counter. In fact, the greatest service of electricity in the household has just become apparent—electricity as a social leveler."



Among the many trades that have been benefited by the introduction of motor drive, the printing industry is conspicuous, not only on account of the improvements which electricity has brought about, but also because of the wide extent to which the electrification of the trade has already reached.

In New York City, the *World* has an enormous installation on the Edison lines, the service replacing a large private plant. Only recently, the *Mail and Express* has given up its steam plant to substitute electric drive with central station service.



Significant indeed is the list of motor-driven press outfits given by the Sprague Electric Company, in a recent publication devoted to electric equipment for printing machinery. Here are given the names of 1,200 newspaper and publishing establishments located in this country and Canada, which within the last few years have obtained their motor apparatus from this one firm. In addition to these are print shops in Australia, Argentine, South Africa, Mexico, Chile, and even China.

The chief benefits which the printing industry derives from electric equipment are roughly as follows: The motor-drive does away with overhead belting, from which oil and dirt

would drop upon the work in hand thus spoiling the "job" and wasting materials. The various machines may be placed where they are wanted and not in arbitrary rows, in line with overhead shafts. Since each machine and motor is a unit in itself, trouble with one would not mean shutting off the entire group, while conversely it is unnecessary to supply power for the whole plant when only one single machine is in service. These and kindred advantages go to explain the tremendous increase of electric power in printing establishments.



In life, tragedy and comedy follow upon the heels of each other with a closeness that is, to say the least, inartistic. Thus, the very vaults of the Equitable building in which President Giblin nearly lost his life next stage a little comedy.

A big life insurance company rescues its securities, water-soaked, but otherwise uninjured. How those papers, representing some three millions, should be dried, presented a question not included in the rule-book of any insurance company. Blotting paper is first tried, extensively but without avail. Something, however, must be done, lest the valuable papers mildew.

The wise men of business then hit upon the primeval remedy. Wet goods may be ironed. In the vaults of a safe deposit company a clothesline is stretched, upon which are hung the soaking papers representing so much wealth. Electric fans start the drying process, while the electric flatiron restores the stocks and bonds to their pristine freshness,—and dryness.





Waterside Station at Night—from East Thirty-first Street

### The Power House

By Charles J Storey

Into the night the inky stacks loom high,  
 Towering above the bulk of wall and roof;  
 Before the skylight's glare the pale steam drifts,—  
     A formless wraith.  
 Like some infernal castle seems the mass,  
 Buttressed and towered, fraught with dread and death,  
 From whose mysterious depths by night arise  
     Wan, spectral shapes.

From out the shrouded pile a low hum sounds,  
 The croon of whirring engines o'er the birth  
 Of the invisible slave whose touch  
     Is life or death:  
 Whose soulless, formless essence speeds the air  
 Or travels subterranean ways, at last  
 To flash in light or bend to toil that we  
     May freer live.

NOTE.—These verses give the Author's impressions of Waterside Station, as seen from the roof of the Phipps' tenements on Thirty-first street.—THE EDITOR



## Subway Building, Old and New

TO an old New Yorker the very word subways recalls years of legislative struggle. It is associated with the memory of engineering feats finally accomplished, at the cost

early as 1868 with the incorporation of the New York City Central Underground Railway Company, for the purpose of building a line from City Hall to the Harlem River. Nothing

ever came of the project, however, and four years later the New York City Rapid Transit Company was incorporated to construct a road from the City Hall to connect with the New York and Harlem road at Fifty-ninth Street, with a branch to the tracks of the New York Central. This plan never materialized though, and the ensuing years until 1897 saw the incorporation and dissolution of several similar companies.

In 1897 the Rapid Transit Underground Railway Company came into being. The Rapid Transit Act, which provided that the road, when built,



A Telepher Hoist at Sixty-second Street and Lexington Avenue, Equipped With a Sixty-five Horse-Power Motor. The Muck Buckets are Brought to the Surface through the Shaft at the Left, Bucket and Hoist are Shifted Along the Short Run to a Cart and the Load is Dumped

of streets upturn for weary months; and it brings the realization that many more miles of railroad must be constructed before the transportation problem of this city is solved.

The subway agitation began as

should be owned by the city, had been passed in 1891, and under it the present tube was constructed. The building of the subway through sand, rock, filled-in ponds, under buildings, past sub-basements, over streets, and under

rivers, stands out clearly in the minds of all who watched the operations. When one considers the difficulties that were surmounted, it seems hardly probable that the work could have been done at any earlier period of the subway agitation.

This was emphasized during the past month, when the city engineers entered the hole under Broadway at Murray Street, that was designed to have been New York's first subway. For forty years the abandoned work has lain undisturbed under the busy thoroughfare, and it is doubtful if many, of all the thousands that walked over it each day, even suspected its existence.

The old tube is hardly more than a block in length. Entrance was had through a grate-covered shaft in the grass plot of City Hall Park. The single car that represented the road's rolling stock was taken apart to be set up in one of the city offices among the relics. The tube itself will be ripped out to make way for the downtown section of the newest subway—the Broadway-Lexington Avenue route.

The problem that baffled the engi-

neers in the early days was one of machinery. It took thirty years to bore through the four and three-quarter miles of Hoosac Mountain, and the completion of the "hole" in 1875 was only made possible by the importation from Germany of the first compressed air drills ever used in this



A Derrick and Boom Hoist at Sixty-fifth Street and Lexington Avenue. There are Thirty Sixty-five Horse-Power Motors and three Forty Horse-Power Motors on Lexington Avenue, Between Thirtieth and 118th Streets. Others are to be Installed as the Work Progresses. The Fact that No Complaints About Smoke or Noise Have Come from the Sanitarium on the Adjacent Corner Demonstrates one of the Advantages of Electricity over Steam

country. At that, the contracting firm which finished the bore went bankrupt in the attempt.

All the natural obstructions which



would have confronted any earlier subway builders in New York were still there to be met by those who finally undertook the task, and in addition were the problems of working under traffic-laden streets. At every crossing there were sewers, water mains, gas pipes, telephone and electric light conduits. Along the right of way were skyscrapers whose sub-basements lay under the route of the tunnel, while their roofs seemed to pierce the sky.

The work was started in 1900 and finished four years later; a lasting monument to the courage, foresight, and skill of the builder, the late John B McDonald. Nothing like it had ever before been attempted; but it is safe to say, that with the path through engineering mysteries blazed,—or blasted—underground railroad construction in the future will go forward with marvelous strides.

Even now the city is in the midst of another such process, one that will rip and tear and blast its way from the Battery to the Bronx, and which, when finished, will add miles to the city's railroad system. This new subterranean railroad will start from the Battery Park, make its

underground way up Church Street, swing over to Broadway at Vesey Street, up this famous thoroughfare to East Ninth Street, where it will pass under the present subway, into Irving Place and on into Lexington Avenue. The route then lies up Lexington Avenue, under the Harlem River to 135th Street and Park Avenue where the line will branch, one arm bearing off to the east and up the Southern Boulevard, while the other will extend up Mott Avenue to 155th Street. To a certain extent the same methods of construction will be followed, but the motive power behind the operation will be different and will mark emphatically the development of methods over ten years ago.

Whereas steam furnished the power for most of the early work, so much in fact that the smoke from one of



One of the Four 400 Horse-Power Motors in the Air Compressor Plant at Ninety-sixth Street and the East River. These Motors are Connected Directly With the Generating Units at Waterside and are Run on 6,600 Volts. Twenty two-hundred Feet of Free Air are Compressed a Minute for Use in Drills

the contractor's engines drove him to the wall via the damage suit route, electricity will drive the machinery in this newer undertaking. In striking contrast with the small amount of current used then will be the fifteen or twenty thousand horse-power employed on this Lexington Avenue work. Here the contractors, to the exclusion of all other kinds of power, will use electricity, getting their supply direct from the Waterside Station of The New York Edison Company.

Motors will turn the drums that hoist the rock and dirt from the excavation; other motors will operate the aerial cable ways that will carry the muck buckets to the dumping platforms; in the machine shops where the workmen's tools are to be repaired or sharpened, small motors will turn the lathes; powerful motors, of 400 horse-power each, will run the air compressors to furnish the power for the drills that will slowly push the work ahead through the ledges of rock that have lain undisturbed for centuries; and finally, the lights under which the subterranean workers will labor will be electric, both the arc and incandescent type being included in the installation. The work will be

carried on simultaneously at fifteen different sections, and according to the contracts will be completed in about three years and a half, at a cost of approximately \$50,000,000.

One innovation will be the double decking of the entire section under Lexington Avenue, as well as parts of the work north of the Harlem River. Where this construction is to be carried on, the tunnels are through rock, and the track elevations will be entirely separate, one tunnel being bored beneath the other. Local trains will run on the upper level and it is probable that in the downtown section six tracks will be provided.

The Canadian Pacific Railway is about to adopt a system of telephone train despatching west of the Great Lakes. The system is already in use on the eastern lines of the road.



The Tunnel Muck is Taken to Thirty-first Street and the East River, where it is Dumped on Scows and Transported to Long Island to Fill in Lowlands. The Derrick Shown here is Equipped to Lift the Buckets from the Carts, Swing Them over the Scow and Empty Them. The Buckets are Filled at the Tunnel Heading, Shifted to the Shaft, Hoisted to the Street and Placed on the Cart which Transports them to the Dumping Dock

## Central Station Service in a Storage Warehouse



The Manhattan Storage Warehouse Company

**A** MEDIEVAL castle in the midst of New York City,—with tower, turret, and parapet, while its great vaults, deep down in the earth, hold vast treasure, which once upon a time, would have consti-

tuted the wealth of a kingdom! Its wine cellars contain rich, mellow old wine from far countries. Its massive walls are three and a half feet thick. The windows and doors that open on the outside world are steel barred and shuttered. Such is the Manhattan Storage and Warehouse, Lexington Avenue, Forty-first and Forty-second Streets.

This commercial Bastille was erected in 1883, and there are now four million cubic feet of space in the building. The smallest room for the storage of furniture is seven feet and three inches long, four feet and eight inches wide, and eight feet and nine inches high, while the largest furniture storage room is a hundred feet long, twenty feet wide and twelve feet high.

The building underwent its most severe test in 1888 when the furniture factory of Pottier & Stymus, across the street on Lexington Avenue, burned. The *New York Sun* of March 2d, 1888, said: "The solid brick walls of the Manhattan Storage Warehouse scarcely smoked, while all the other buildings for a block around were steaming or sending out tiny jets of flame from cornices and window sashes. After the Lexington Avenue walls of the Pottier & Stymus building fell in, many of the iron shutters in the storage

house were thrown wide open showing the thick brick partitions within unaffected by the intense heat. The fire was a severe test for the storehouse, and it withstood it bravely. Within its walls were perhaps two million dollars' worth of goods on storage, and the building itself represents in the neighborhood of a million dollars."

The Manhattan Storage and Warehouse enjoys a unique distinction, shared by only one other storage house in the city. By a special arrangement with the United States Government, passengers on steamers from abroad may have their baggage consigned directly to the warehouse and inspected there later on instead of at the wharf.

Recently the private generating plant, which supplied the light and power for the building, was closed down and Edison Service chosen as a permanent substitute. Four high-pressure boilers are being discarded, only two low-pressure boilers being retained for heating purposes.



A Portion of the Abandoned Plant



## Delivery System of the American Express Company

**C**HANGES that will completely revolutionize the package handling system of the American Express Company are in progress. In the city delivery service the horse is yielding rapidly to the motor car. Already there are 120 machines in operation, and preparations are being made for the addition of another hundred in the very near future. Of the machines now in use, forty are of the gasoline type and eighty are electrics.

Radical alterations in the company's new building on Forty-second Street will convert it into an electric vehicle garage. The entire second floor, remodeled after plans submitted by the consulting engineers,

Pattison Brothers, will afford accommodation for 100 electric wagons, and will be equipped with a charging board having 100 outlets. Four six-ton electric elevators, each operated by a thirty-five horse-power motor, will carry the cars from the street level to the floor. From the charging panel fifty two-wire conduits lead to 100 points on the floor where the cars will be plugged in. An annunciator equipped with a series of drops will indicate when each battery is charged, and will signal the operator to throw off the switch. It is expected these alterations will be completed by the middle of this month.

Until five years ago the entire business of the company was handled by

horse-drawn vehicles. This included picking up and delivering in each local district; the longer hauls between districts, and even the trips between far removed points where shipments were not



The Flanders Colonial Coupe is Built to Seat Five Persons Comfortably. Although Six can be Accommodated. The Price is \$1,775 and Hundreds of Cars Have Been Sold for Future Delivery



made over the railroads. About 1,600 horses, stabled in twenty-six buildings, were required and there was no thought of any radical change.

Then it was decided to test a number of motor trucks of different size and type, and in 1907 an electric was placed in service. During the next year some gasoline trucks were tried out and during 1909 fifteen three-ton trucks were purchased. At the same time four electrics were also purchased after being tested.

Careful records of the cost and operating capacities of the two types of cars, as compared with the horse, were kept. These showed that the gasoline cars were better suited to the heavy long hauls between depots, while electrics gave the best results for pick-up and delivery work. Electrics, of course, were found to cost more per vehicle than horses, but this was more than offset by the increased service rendered. As a result of these tests twenty

gasoline cars and seventy-five electrics were ordered last year, making a fleet of forty gasoline cars and eighty electrics.

Despite this large motor truck equipment

about 1,300 horses are still retained by the express company.

Figures based on the average day's business show that the American Express Company picks up and ships to out-of-town points about 30,000 packages and receives for delivery in the city about half that number. In addition to this there are about 15,000 packages handled in the local business.

In manning the trucks the company found that the best service was given by the men who had driven horses. They not only were familiar with the work and the geography of the city, but their experience as drivers had taught them the value of care. It was a simple matter to teach them the operation of the electric, while the manipulation of the gasoline car required more mechanical skill. Occasionally, among the drivers one was found who was a natural mechanic, in which case, he was immediately assigned to a gasoline truck.

The seven-story building at 215



One of the Twenty-eight Trucks Built by the General Vehicle Company for the American Express Company



A 3,000-pound Truck Used in Detroit for the Transportation of Casks and Crated Demijohns. A False Floor Protects the Motor and Battery from the Acids and Chemicals in Case of Leakage. The Frame is for the Canvas Cover in Case of Rain. This is a 1912 Model "Detroit Electric"

West Forty-third Street, formerly used as a stable, was converted into a garage. Part of its equipment is a sixty-outlet charging board, at which the batteries of the electric trucks are replenished each night. Among the electrics in the fleet of the American Express Company are twenty-six two-ton, one three-and-a-half-ton and one one-ton General Vehicle trucks, and fifty-one two-ton and one one-ton Baker cars.

The Westcott Express Company, which is owned by the American, has five electric trucks in its service and is planning further extension of its motor car equipment, having recently replaced horse-drawn cabs in its railroad station service with eighty-three gasoline cars.

Experiments are being made in Boston where five three-ton gasoline trucks and four three-and-a-half-

ton electrics are used. Motor cars are also being used in other cities, but it is not expected they will ever replace the horse in the country districts. The reason for this is simple. While the motor car needs the care of a trained automobile mechanic, who

is not yet to be found at every cross-road, the only machinist needed for a horse team is a blacksmith.

### The New Flanders Agency

THE Flanders Manufacturing Company, of Pontiac, Michigan, has opened a New York selling office at 1932 Broadway, with Mr W R Chandler as representative in this city. The salesroom has just been redecorated in white, blue and gold, and the coupe and the victoria, the only models built by this company, are exhibited. In connection with the salesroom there is a garage where cars are stored and cleaned, and where batteries can be recharged.

The Flanders Electric is one of the lowest priced cars manufactured. Its price, according to the builders, is figured on a sale of 5,000 cars, and

despite the fact that the car made its first appearance during the present season, already orders for more than half of this number have been booked. The announcement of the Flanders electric was made in a full-page advertisement in 200 newspapers throughout the country. This brought 500 inquiries for agencies and over 20,000 inquiries from individual buyers, the manufacturers report.

In a little booklet, "Wise and Foolish Statements about Electrics," the Flanders manufacturer says: "Let us make three statements that will probably astound you.

"First: An electric vehicle can be made to go faster than any other type of vehicle yet invented.

"Second: An electric vehicle can be made to go farther on one charge or filling than any other vehicle known; and—

"Third: An electric is so good a hill climber it can be made to pull itself straight up a telegraph pole."

Then the writer goes on to tell of an electric car that was driven from Paris to Lyons, France, a distance of over three hundred miles on one charge, twelve years

ago; of a racing machine with only ten cells in its battery and a three-quarter horse-power motor that covered a mile in thirty-four seconds; and of electric cranes with very small motors that lift hundreds of tons of steel.

The explanation of these rather startling facts follows: "You can have 500 miles radius on a charge, or you can have 120 miles per hour speed,—either, but not both. Fix that fact in your mind. To obtain excessive speed you must sacrifice wide radius, and *vice versa*."

The Government has just received a repeat shipment of two-and-a-half and four-ton trucks from the General Vehicle Company, designed especially for Navy Yard work, which will be used in the yards in different parts of the country. The twelve cars just delivered bring the total of G V's in government service to thirty-nine.



A Two-ton General Vehicle Company Truck Used by a Well-known Hardware Company in this City for the Transportation of Nails and Bolts from the Railroad Station to the Warehouse and Other Points of Distribution

## Laundry Work by Oscillation

**A**N electric washing machine, well known in the Middle West, but still new to New York and vicinity, is now to be sold throughout this general region by its manufacturers, the John Dietz Company, of Cincinnati.

Electric laundry appliances are no longer a novelty, even in the benighted East, but this latest comer has several novel features in its design and operation. Probably the most common type of washer is that where the laundry is placed in a perforated barrel, which is revolved first in one direction then in another, for a certain number of minutes.

In operation, the Dietz apparatus, as may be seen from the illustrations,

differs radically from the ordinary, being based on the principle of oscillating rub-boards. In the lower, concave section, the clothes are placed, while the convex board closes down upon it. The two boards ordinarily are three inches apart, but may be adjusted according to the quantity of laundry to be inserted.

A one-sixth horse-power motor furnishes power to "oscillate" the rub-boards, which give the clothes a "gentle but firm" rubbing, the perpendicular corrugations serving to stir the soapy water. It is asserted that this washer will operate from any lamp socket, and that a tub full of clothes may be cleansed in from eight to ten minutes, the machine costing less than two cents an hour for current.

A faucet at the bottom permits of its being easily drained, so that the water may be conveniently changed as often as desired. Other features of the apparatus are the reversible wringer attached to the edge of the machine, which is to prevent the clothes wrapping themselves around the rollers, and a second outlet, which is provided so that the motor when not in operation for laundry work may be used in connection with some other machine, such as an ice-cream freezer, or a vacuum cleaner.



Two Parts of the Washer, Showing How the Laundry is Placed in the Lower Section, the Upper One Being Closed Down Upon It. Note the Perpendicular Corrugations

This new laundry outfit is not by any means cheap, its price being just under \$100; but on the other hand, it may be said to approach most nearly that desirable state of perfection commonly known as "fool-proof," since the entire apparatus is controlled by two levers, one for the washer and the other for the wringer. Also, as is often pointed out, no chains or belts are draped about it to catch the clothes of the unwary.

## New Dryer and Purifier for Transformer Oil

**A** NEW oil dryer and purifier, motor driven, and using an electric oven, has been developed by the General Electric Company. Although the device is called a transformer-oil dryer, it may also be used to remove foreign substances from crude petroleum, insulating-varnish or japan, benzine, and various viscous insulating compounds. The new apparatus removes the water or slime by forcing the fluid under high pressure through several layers of dry blotting paper. All solid matter is caught by the first layers of paper, while the water is retained in the paper by capillary attraction.

The filter consists essentially of a series of alternate flat cast-iron plates and frames, the blotting paper being placed between them. Since the plates and frames are very thin, and are all connected so that the oil circulates in parallel, large filtering surfaces and



Attached to the Machine is a Reversible Wringer, Easily Operated. The Entire Outfit Can be Run on a Small Amount of Current, While the Motor, by Means of Special Outlet, Can be Connected with Other Household Devices When the Laundry Machine is Not in Use

great capacity is obtained in small space. The twelve-inch size will filter at the rate of fifteen to thirty gallons of oil per minute. A rotary gear, or multistage centrifugal pump is furnished, and any style of motor may be used.

An electric drying oven has been developed especially for drying the paper. The interior is provided with suspension rods on which the paper may be strung, so that it hangs in a vertical position. The paper should always be saturated with dry oil immediately on removal from the oven, before it has cooled, since exposure to normal air for a few minutes is sufficient to neutralize the effect of drying.

"Get your friend out of trouble before you lecture him."



## The Charles Francis Press

INSTANCES there are, in the history of almost every trade, where the genius and personality of one man have reclaimed an apparently ruined and hopeless enterprise and lifted it from the chaos into which it had fallen to place it on a sound, successful and paying basis.

In June, 1894, Charles Francis took charge of the old Stuyvesant Press, after it had passed through the hands of the Sheriff and seemed approaching a speedy dissolution. Starting out with a broken-down relic of a printing plant, Mr Francis has built up in less than a score of years the splendid



The Main Pressroom of the Charles Francis Press, Thirty West Thirteenth Street

Several conspicuous examples of this sort of industrial regeneration in New York City have recently occurred among the publishers. Ochs took over the bankrupt *New York Times*, and forced it into a prominent place in metropolitan journalism. Hearst scored a similar success when he acquired the disreputable and almost defunct *New York Journal* in 1896 and built up the flourishing sheet of to-day.

establishment in West Thirteenth Street which bears his name, and prints, among other well-known magazines, the *Outing*, *Field and Stream*, *Motor Boat*, *Musical Age*, *College World*, and *Printers' Ink*.

During the remaining months of the year 1894 in which he took over the Stuyvesant Press, Mr Francis did \$14,000 worth of business with his remnant of a plant. In the early part

of the next year a rapid increase necessitated the removal to its present commodious quarters on West Thirteenth Street.

In 1900 the Charles Francis Press was incorporated and in 1904 the capitalization was increased, many of the employees taking preferred stock. Nineteen hundred and one saw the addition of a bindery. Thus the plant has grown and been renewed to such an extent that now scarcely a vestige of the original material of the old Stuyvesant Press is to be found. The present establishment is turning out more than \$300,000 worth of business each year.

It was in 1900 that Mr Francis arranged with The New York Edison Company to lay a line from Sixth Avenue on the south side of the street and connect a fifteen horse-power motor to serve as reserve power. Beginning with this single motor, electricity grew to be the main and then the only source of power and light in the building. Every piece of machinery now has its individual motor, thus saving space and operating cost. During the year 1910 the Charles Francis Press used in excess of \$1,000 worth of current a month, but expects to save at least \$1,500 this year owing to the reduction in rates of The New York Edison Company.

On the ground floor are two Cottrell-Webb rotary presses, operated by ten and sixteen horse-power motors respectively. Next to these stand a line of six Miehle presses, all operated by seven-and-a-half horse-power motors. Back of these stands a traveling crane for the handling of great rolls of paper. There is also a winding machine.

The bulk of the lighting in the

building is done with "arcs," although there are hundreds of small incandescents scattered about wherever needed. The second floor is entirely taken up by flat-bed cylinder presses—Miehles and Campbells,—which are operated by individual motors ranging from three to seven-and-a-half horsepower. All of the presses in the establishment are equipped with the Chapman neutralizing system,—a new contrivance, which demagnetizes the printed sheets so that they do not adhere. This is done by means of a bar, through which current passes at a very high voltage and low amperage and over which the sheets of paper must run as they come out of the press.

The third floor is also a pressroom, being devoted mostly to job work. Here are found four pony presses, five jobbers, together with two or three rotaries. There is also a battery of five linotypes, one of which is the newest style double-decker. Another interesting and useful machine on this floor is a bronzing machine. There are two presses for taking fine proofs, galley presses, a jig saw and drill, a Miller saw for trimming both linotype slugs and wood, and a rotary "cut surfacer" for making cuts exactly type-high.

The composing room is directly above and is equipped with the latest faces of job type and all essentials of a modern composing room. During the erection of the building, light and air were well considered throughout and the proof-reading department, which overlooks Thirteenth Street, has the benefit of many especially large windows. Economy of floor space is one of the achievements in the laying

out of the composing room. There is a fine outfit of Warnock blocks, sectional and diagonal, numerous lead cutters placed near the windows in excellent light, together with lead, rule and form racks, arranged so as to save every possible step for the workmen.

The entire top floor of the building is given over to the bindery, which is run entirely by electricity. The mechanical equipment consists of a gatherer, stitcher, and coverer, two cutters, at least a dozen wire stitchers,

electric freight elevator to the ground floor, and in a few minutes more are off for their various destinations.

### A Fifty-Pound Iron

**W**HAT undoubtedly is the largest electric flatiron in the world weighs fifty pounds and is used by a Broadway tailor. This sounds as if it were picked up by Gulliver on his tour in Brobdingnag, for it is so large that

no man can use it. So that it may be operated, it is hooked up to a machine which raises, lowers, and helps swing it.

This fifty-pound iron has an interesting history. It started life as a gas-heated iron. About two years ago its owners heard some things about electric irons; first they tried one and in a few months were using six.



Lower Manhattan as Seen from Columbia Heights, Brooklyn

a row of ten folding machines, roller embosser, a round cornering machine, a smashing machine, a multiple punch, and an automatic knife-grinding machine. In fact nothing is lacking for the speedy performance of this kind of work.

After the many magazines are bound, there are facilities for folding and mailing them direct from the building to their thousands of subscribers all over the world. The addressing completed, the periodicals are put in mail sacks, taken down an

Then the problem arose of what to do with the "big fellow." At length their difficulty was brought to the Heating Bureau of The New York Edison Company and arrangements were soon made to transform the monster into a modern electric iron.

The back was removed and the pipes inside were ripped out. After a little drilling an up-to-date electric heating unit was fitted and a plug attached. Owing to its previous condition of servitude, it was necessary to have the opening for the plug in



The Largest Flatiron in the World—Of Course It's An Electric—Used by Curry & Herford

the front instead of the rear, as is the case in the general run of electric irons. This difference, however, has no effect on the usefulness of the iron. The firm is much pleased with this ingenious metamorphosis, which has saved one-third on the cost of a new iron, while the electrified product has been performing perfectly.

The water powers of the Province of Quebec will no longer be sold in perpetuity. Proposals for ninety-nine year leases have already been advertised.

Two electric street car lines were recently completed in the city of Pisa, Italy. The fare is said to be equivalent to less than two cents a person.

Wireless stations have lately been erected by Denmark in Greenland and Iceland, by Russia in Siberia, and by the British Government at Port Said.

The British Post Office reports over 40,000 wireless marine messages for the past year. This is nearly twice the number recorded for the year preceding.

## Electric Heating at the Hippodrome

**A**MONG all descriptions of the marvelous equipment in the New York Hippodrome, with its innumerable electrically operated devices for handling the stage and shifting scenery, but little mention has been made of the modern heating devices used in the dressing rooms of the performers.

It is not commonly known that every bit of grease-paint, —and many are the pounds that are used each day, —is warmed and softened over an electric heater. In all the confusion of a dressing room there is far too much danger of fire from any unprotected flame, so in addition to the lighting system, heaters and curling irons were installed in every room. Behind this simple precaution lies, perhaps, the reason why there never has been a fire in a dressing room at the Hippodrome.



Electric Curling Iron, Heaters and Grease-Paint Melter at the Hippodrome



## Four Cables Across a River in Thirty-Six Hours

**F**OUR high-tension transmission lines were recently extended across the Harlem River, connecting "Waterside" of The New York Edison Company with the sub-stations north of Manhattan Island. These four

its fellows. For example, one extends directly up First Avenue, while another is carried all the way over to Broadway and then brought back through an uptown cross street. No two lines connecting the same points



The Reels of Heavily Insulated and Armored Feeder Cable Before Being Drawn Under the Water

new feeders bring the number of connections between the generating plant and the northern distributing stations of the system to a total of twelve. Nine of these cables are in service now, carrying current at a voltage of 6,600, while the other three are held in reserve, to meet emergency requirements.

Each of these twelve high-tension feeders proceeds to its destination by a route entirely independent of any of

in the system are laid over the same route. In other words, the eggs are not all carried in the same basket. For this reason, no matter how serious an accident might disturb the feeders on one route, there would be lines through another street to take up the work, without any interruption of service.

Eight cables cross the river at Second Avenue, while the other four, which include two not yet in service,



have their crossing a little further to the north. These were installed early in the month of December, and in doing the work, the Distribution Department of the Company established a record for speed and thoroughness. The value of co-operation was never more thoroughly demonstrated than during the thirty-six hours it required to place the cables in the bed of the

river to the sub-stations, where it was transformed to meet the needs of the people of the Bronx.

Of the present twelve cables, two enter the Fordham sub-station; the other ten, the Rider Avenue station. From these points tie lines connect with the American Bank Note Building, the Yonkers, and the Jackson Company sub-stations, from which, respectively,



**The Cable Under the Water. A Diver Followed the Work Across, Clearing Obstacles from the Path, and Preparing a Trench in Which Cables Were Buried Beneath the River Bed**

river. The Habirshaw Wire Company, manufacturers of the cable, and the men of the Distribution Department of The Edison Company rushed the work of sinking the cables, making fast the anchorages on either bank, and splicing the wires to the land transmission lines.

It was the work of two nights and a day; but by Tuesday the "juice," at 6,600 volts, was flowing under the

current is supplied for the city on the Hudson and the aqueduct work. There are now nearly 400 miles of high-tension cable, connecting the Waterside Stations with the various sub-stations in Manhattan and the Bronx, and nearly 1,000 miles of mains and feeders, to distribute current to the customers.

"No man would listen to you talk if he didn't know it was his turn next."

### The Post-Card Projector

**B**Y means of an improved post-card projector, in which is embodied an arc light of great power, it is now possible to reproduce pictures of all kinds without sacrifice of color or detail at sizes up to fifteen feet. The post-card projector was recently placed on the market by the Victor Animatograph Company.



Hauling One of the Cables to the Surface on the Manhattan Side of the River. A Pile-Driver Was Used as a Landing Stage. The Cable Was Drawn by Attaching Wire Ropes to the End and Then Winding Them Over the Drum of the Pile-Driver

manufacturers, gives a steady, noiseless and flickerless light. It is so simple that, with five minutes' practice any one may become an expert operator.

The same arc is used in the stereoptrope, which does with a slide twenty-one thirty-seconds by three-fourths inches what is done by the familiar stereopticon with a slide three and one-fourth by four inches. The entire

outfit, machine, arcs, connections and slides, weighs but twelve and a half pounds, while a stereopticon of equal capacity weighs as much as sixty.

---

"About one-third of a man's time is spent in asking questions that nevershould have been asked."

A white arc light faces the picture or post-card, and is so powerful and clear that the subject is reflected through a lens on a screen, without the loss of a detail.

The arc may be attached to any circuit of any voltage, direct or alternating current, and, according to its

"Advocate the right, but don't overdo it; don't become so disagreeable advocating the right that you accomplish more harm than good."

"Our idea of a prominent citizen is one who does not want to be postmaster."—E W Howe.

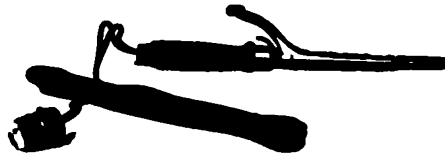
## Some Novel Heating Apparatus

**A**S a physical fact, the heating effects of electricity upon various substances have been recognized since the earliest days of experimentation. That this same effect can be made commercially useful, is, however, one of the more recent developments in the electrical trade.

In all honesty, it must be admitted, that "low initial cost," to phrase it most delicately, could not exactly be used as an argument for electrical devices. Cleanliness, greater output, ease of operation, decreased fire-risk,--these embody the creed of the manufacturer of electric heating goods.

Thus, appealing as it does only to the far-sighted producer, electric heating had to make its way comparatively slowly, an entering wedge in the industrial field being the electric flatiron. The proportions to which this business has grown is surprising to all except those most intimately concerned in it. Last Spring the *Electrical*

*World* made the statement that 200,000 electric flatirons had been sold that year in the United States and in the Dominion of Canada.



An Electric Curling Iron

Following flatirons, came lesser known heating devices, such as the electric japanning oven, the velvet steamer; soldering and branding irons. An interesting collection of these, and similar heating devices, is manufactured by the Vulcan Company, of Buffalo, whose product until recently has been marketed largely in the West, and which is now being introduced in this city by the Rex Sales Company. In addition to the sealing-wax heater, mentioned in an earlier issue of the *Monthly*, the firm controls several devices which are said to be the first of their kind.

Among these more novel heating implements is the so-called felting-tool, designed to meet a special need in newspaper and other printing establishments, where high-speed rotary presses are used. As all printers know, a strip of felt is placed between the type metal and the cylinder of the press. With



Vulcan Branding Iron

## The Edison Monthly

usage, the felt then tends to "bolster" at the ends of the metal. The black mark occasionally seen at the edge of a newspaper page is a sign that such is the case. When this occurs, pressmen have various remedies, all of which, however, are more or less destructive. In many shops the roll of felt is cut off with a knife, a process that soon destroys the felt.

Another method requires the maintenance of a small forge in the far corner of the pressroom. Irons are brought to red heat, and applied to the "bolster." Aside from the running to and fro from the presses to the forge, the difficulty here is that when first applied the iron is too hot, while in a few minutes it is not hot enough.

The felting-tool, electrically heated, is designed to iron out the "bolster" without cutting or damaging the felt. The pressman simply holds the heated iron against the mat as the press revolves, and in a few minutes the roll has entirely disappeared. By using



The Flatiron, With Stand and Cord

electrical heat a uniform suitable temperature can be maintained throughout the operation.

Another heating device intended for the electrotyping foundry is the waxing tool. In making an electrotype, a wax impression is first taken of the object to be printed. This mould is, of course, a negative of the original type. To emphasize any point, or *vice versa*, to soften or to obliterate any portion of the plate, wax is either shaved off or added, as the case may be. To furnish a tool kept at the right temperature to melt the wax is the object of the electric wax heater. Like all other heating implements described in this article, it can be operated from a lamp socket.



Electric Can-Capping Tool



Felting and Waxing Tools





Electric Soldering Iron and Holder

Electric soldering irons have passed the stage at which they were a novelty, and have become recognized as the superior tool for their kind of work. The Vulcan products, however, furnish two points of departure, one in that the heaviest electric soldering iron on the market is offered, and the other in the tool-holder, an extremely handy and satisfactory auxiliary to soldering work. This heaviest iron referred to is equivalent to ten pounds of copper and is designed for heavy sheet metal, large patterns and in fact all heavy soldering, but it consumes only 500 watts and can therefore be operated from an ordinary lamp socket.

The tool-holder, which can be used for any size iron, should be a boon to both operator and employer. A hot soldering tool is an unhandy object when not in actual use, since it cannot be laid down without the liability of causing damage. To do away with this annoyance and loss of time, an extremely simple but efficacious tool-holder has been

devised. This is practically a hollow coil of plated iron wire, in which the hot tool can be placed, the wire taking up the heat and preventing the tool coming in contact with any other object or substance.

Constructed on exactly the same principle as the soldering iron is the electric branding iron, for which the same virtues are

claimed over older methods. That is, the heat is at the point where it is wanted and nowhere else; the tool is kept at just the right temperature to do its work, producing far greater speed of operation and a greatly improved quality of work.

A can-capping tool is one of the more special instruments manufactured by the Vulcan Company, usually employed in conjunction with a can-capping machine, and goes to prove to what extent electric heating can be adapted to factory needs. The heating tool is made with the same diameter as that of the cap to be soldered, while a spring plunger holds down the cap until the solder sets.



Automatic Branding Iron for the Crown Bottle Capper



## Further Comment on Boiler Trouble

**A**BRAHAM TULCHINSKY, a push-cart peddler, stopped in front of 402 Sixth Street this morning," reports the *Evening Sun*, of recent date, "just in time to be hoisted in an eruption of the sidewalk that went up with a big bang and a cloud of scalding steam from an exploded boiler underneath the walk. The cloud spilled him in the street, badly bruised and scalded. Downstairs, the boiler kicked over Engineer Ludwig Homann and spread steam over him. His face, head and neck were seared, and after the police finished talking with him about the accident he was sent home to 2084 Second Avenue. The peddler is in Bellevue Hospital.

"The explosion tore a fifteen-foot gash in the sidewalk, threw debris to the roofs of the five-story tenements, shook out window panes on both sides of Sixth Street and jarred loose several thousand tenants from morning occupations and steam heat.

"The boiler was part of the refrigerating plant of George Torsch, a dealer in provisions at 402 Sixth Street, at the corner of First Avenue, and was placed directly under the sidewalk. The neighborhood is one of the East Side zones of dense population."

This item, selected at random from a daily newspaper,

is only one of the many that go unconsciously to point out the danger that exists in steam-boiler plants and which involves not only the owner of the property and those most immediately concerned in its care, but, as this story goes to prove, anyone who may for the moment happen to be near.

Of course, the undesirability of a steam plant is one of the arguments for central station service; but the central stations are by no means alone in their contention that at best, high-



Damage Wrought by a Fly-wheel Explosion in the Booth Mill, Lowell, Massachusetts. Central Station Service Makes the Presence of Dangerous Power Generating Apparatus Unnecessary

pressure steam always does, and always will, contain an element of danger, which is only intensified where false notions of economy in handling prevail. Under the caption, "Old Boilers are Dangerous," the magazine *Power* discusses this tendency of the private owner to let his plant deteriorate.

"The two boiler explosions which have occurred recently in New York City, while resulting in no loss of life and with but slight property loss when compared with what might have been, point out the lesson that old boilers should be discarded before becoming unsafe.

"Both of these boilers were old, and they were carrying as high a steam pressure as would have been considered safe several years ago.

"The deteriorating action, due to long usage, gases and contraction and expansion, may have been considered to some slight extent when the boilers were inspected, but good judgment is necessary in ascertaining just how much a boiler has deteriorated and how far the deterioration should be allowed to continue before the boiler is condemned.

"A boiler may become unfit for use in a few years if it has been abused; a similar boiler may be apparently in good condition at the end of twenty years. There comes a time, however, when a boiler, like an old and faithful horse, should be retired upon general principles. Just when that time comes is a question; but surely, a boiler which

has been in constant use for thirty-two years has passed the age of safe operation, especially when cast iron enters into its construction.

"Cast iron is a treacherous metal and utterly unfit for boiler construction, and boilers in which this metal is used should be debarred from high-pressure service.



Boiler Scale Found by The New York Service Company in the Boiler of a Down-Town Sky-Scraper. The Illustration Shows the Scale, One-third its Actual Size. This So-Called Scale, Coating the Lining of a Boiler, is a Frequent Cause of Explosion

"There are doubtless many boilers of questionable age in operation in every large city which should be condemned.

"It is a poor practice to pass a law compelling engineers to pay for a license to operate steam boilers in order that the public shall be protected against accidents and then to permit old, decrepit boilers to be operated after they have reached a ripe old age. The best engineer in existence cannot make a boiler thirty-two years old safe."

"We all know how much trouble we have, but fail to realize how much trouble others have."

"Partnerships nearly always result in a quarrel. We wouldn't own a doughnut in partnership with anyone else."

### Measurement of Character by Electric Lights

JOHN GRAY, a British scientist, announces in *Knowledge*, a London publication, that he has invented a machine by which he can infer exactly the mental character of a person. It has the appearance of a large box camera. The subject on whom the

persists for a short time after the external impulse has ceased.

"If the duration of this persistence," says Mr Gray, "is equal to the time interval between two successive impulses from the revolving mirror, the color will appear to be continuous. But if the persistence is less than the time interval, the color will appear to flicker. . . . In order



Night View of Columbia Library. The Comet-like Streak in the Sky Represents the Movement of the Moon During the "Time-Exposure"

test is made seats himself at a table on which the machine is placed and looks into a telescopic sort of a projection. The apparatus consists of a revolving mirror on a horizontal axis. Flashes of colored light are thrown in rapid succession into the mirror and reflected thence into the subject's eye. Experiments have shown that the sensation of a color

to measure the duration of the persistence in any given person, all that is necessary is to ascertain, from the speed indicator on the axis of the mirror, the exact number of revolutions which the axis is making when the flicker disappears."

Mr Gray has a scale of perseveration and the kind of character likely to be associated with different de-



grees of it. Persons with the average amount of perseveration are at the center of the scale and in this class is the practical business man. When the perseveration is one degree below the average the mind receives external impressions very quickly. Such persons are witty, brilliant and daring and to this class would belong persons considered as geniuses.

opposite defects. Any person above or below two degrees is subject to mild forms of insanity. The value of this invention to men in all walks of life who wish to select men for certain purposes is inestimable. This test would show the exact qualifications of the applicant.

Rochester is far ahead of any other city in the country in the adoption of



Lower New York—Seen from the Liberty Tower

People with perseveration one degree above the average think more slowly. The scope of their mental ability is wide, but they are not quick of apprehension. If the perseveration is two degrees below the normal the person lacks concentration, is apt to be frivolous and superficial. Persons with perseveration two degrees above the average have quite the

electric refrigeration. The equivalent of two tons of ice a day is made per 1,000 inhabitants.

A project is under way for the building of an electric aerial railway up the celebrated Table Mountain at Cape Town, South Africa.

A large deposit of scheelite, the ore from which tungsten is obtained, has been discovered in northern Ontario.

### The Future of Cooking and Eating

**I**N the *Century* for January, Mr Henry T Finck, who for years has made a study of foods and their preparation, presents an article of this title. Certain portions of it, referring to the possibilities of electric cooking, will prove most interesting to readers of *The Edison Monthly*.

"In the average household the use of a cooker does not do away entirely with the smoke, soot, heat, ashes, and kitchen odors, because of the need of heating the food before it is put into the box. The use of gas stoves does away with most of these nuisances, while electricity abolishes them altogether. Electric cooking is still in its infancy, but the child is growing rapidly. At the Chicago Exposition of 1893 electric utensils were shown in considerable variety,—chafing-dishes, stew-pans, coffee-pots, teapots, broilers, griddles, etc. Since that time hundreds of thousands of dollars have been spent in devising improvements.

At the electric exhibition in New York a year ago the cooking utensils were so prominent and boasted so many improvements that it seemed as though the time had come for their general introduction into homes and hotels. The United States Government has taken the lead by recommending electric ranges for future use on battleships, after experiments had been made showing that the change would result in greater economy of time, space, and money, not to speak of cleanliness, or of the better quality of the cooked food, because of the uniform distribution of the heat.

"For home use, electricity is still in

most localities comparatively expensive; but it will be less so when it comes into more general use. If the electric companies would follow the example of the gas companies in renting cooking ranges, it would be a great stride forward. In England some of the companies charge a special low rate for electric cooking, because it is done mostly in the daytime, when there is little demand for the current for lighting purposes. But the most radical way to reduce the cost will be to combine the electric range with the fireless cooker. Thousands of families could not pay for an electric current five or six hours a day but could easily afford one for the fifteen minutes necessary for heating the food before it is put into the box, besides the few minutes needed for crisping roasts, browning coffee, or toasting bread. It is quite likely that the electric range can be so constructed in part that no separate cooking-box will be needed; and then the culinary millennium! Instead of feeling like a drudge in a smoky, smelly, overheated kitchen, the housewife and the professional cook of the future will have the dignity of workers in a clean, cool laboratory for the scientific preparation of savory food and the abolition of dyspepsia. On the principle that prevention is better than cure, they will take the place of physicians. As an English writer has remarked, 'The kitchen is the best pharmacopoeia'."

---

"Every man has a scheme that won't work."

"If the men who are going to the devil would go more promptly, and make less trouble on the way, people would be better satisfied." E W Howe.





St Patrick's Cathedral Lighted to Welcome Cardinal Farley

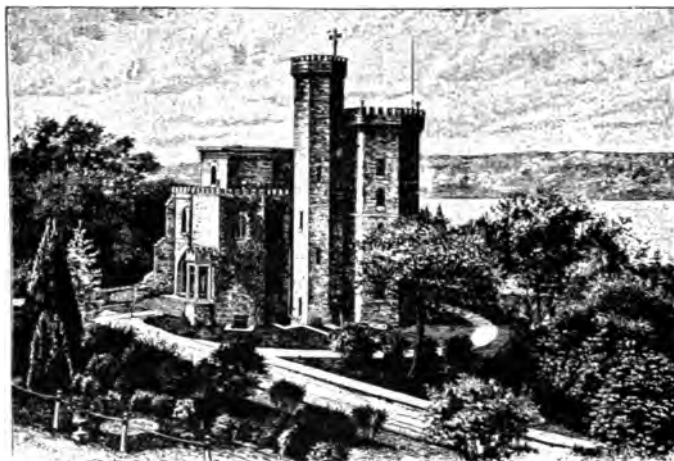
### Fonthill Castle

**A**MONG the few really picturesque buildings left standing in this vicinity is a stately old residence known as Fonthill Castle, belonging to the Girls' College of Mount St Vincent. Recently it was honored by a visit from Cardinal Farley, of New York, but lately elevated to the cardinalate. From its two formidable towers, which may be seen from all

verted into a mineral cabinet of great beauty, is exhibited the Arnold collection of fourteen hundred rare specimens. The drawing-room boasts, among other objects of interest, a case of ancient coins of exceptional value.

The center tower comprises a vestibule leading into a magnificent rotunda, which occupies one-sixth of the space of the building, and is lighted by a glass dome. Around the eight sides

of the tower, at a height of sixteen feet, runs a gallery faced with Norman arches. The main tower has a spiral granite staircase inserted in a solid brick column rising from the basement to the top with landings on each floor leading to the various



*From an old Wood Cut*

This Picturesque Old Residence was Recently Wired for Electric Lights

craft passing up and down the river, the romantic structure derives its name.

The castle, which is now used by the College in part as a museum, resembles somewhat the strongholds of the old Norman barons, who once held sway over England. There are six towers joined to one another, each with its heavy battlements, the highest, the staircase tower, rising to a height of seventy feet.

In the library, which has been con-

verted into a mineral cabinet of great beauty, is exhibited the Arnold collection of fourteen hundred rare specimens. The drawing-room boasts, among other objects of interest, a case of ancient coins of exceptional value.

In preparing apartments for the reception of the Cardinal, additional lighting was found to be necessary, arrangements being made with The New York Edison Company for an installation of one hundred and eighty twenty-candle-power lamps.



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# Editorial

## *The Edison Monthly*

Published by

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Among the many treasures of the National Museum at Washington, is the collection of electrical inventions. Here are to be seen models of the first telegraph and telephone instruments, the Davenport motor, Henry's electro-magnet and experimental devices, and conspicuous among them, the large group of exhibits with which Edison's name is associated.



But alongside the work of successful inventors, are as many relics of the men who tried and failed, inasmuch as they were not able to achieve the end which they sought. Where one brain finally answered some question, many, many more were working to the same purpose. One evolves after years of striving, perhaps only the figurative spoke of a wheel; where he stops, baffled, disheartened may be, another takes up his quest, adding one more drop to the meagre store of scientific knowledge. Then, when the time is come, some master mind gathers together these hardly sought gleanings, and, built on the failure of those who went before, we have success.

So painfully gained is every step in civilization, to which failure mayhap has contributed as much as success. Thus, the Museum not only cherishes the memory of the famous, but by the models on its shelves, representing those many years of what seemed ineffectual striving, the very necessary unsuccessful inventor is likewise commemorated.



"How do you justify your existence," queried one of the editor's decorously radical acquaintances, a few evenings ago. "There you sit day after day, indirectly persuading people to spend some of their hard-earned money for things they never knew they needed until you tell them so."

In itself, one concedes immediately, there is nothing inherently noble in the gentle art of parting either wise or foolish from their money. The real question is, do you give them in return, something that is worth more than money?



Accordingly the editor answered his catechist, "Last month we put in motor-drive for thirty East-side sweatshops, where the workers had been using foot-power before. Perhaps, however, you would prefer to run a foot treadle ten hours or more each day? For nearly a month, the patients at North Brother Island had been suffering from a water famine, their pipes being badly frozen, even way down under the river bed.

Water had to be brought in barrels from the mainland, but this did not suffice, and nothing remained but to remove the sick people to other hospitals, a dangerous proceeding, at best. Then we turned on our current and thawed the pipes; of course, that was an emergency, but just a few days ago, we noticed that an old tenement house in Allen Street was being wired. That means light and air. Maybe though, people are just as well off without it, if we didn't tell them so?" But even the theoretical anarchist wouldn't agree to that.



If some system could be arranged by which the tired business man could be dispatched directly from his office to his easy chair, via a pneumatic tube or some other novel method of approach, one week after the system had been inaugurated the typical New Yorker would assume that he had been using it all his life.



Thus, the majority of us, who beat a speedy retreat to the sidewalk when an ambulance comes tearing down the street, accept it as something that always was and always will be. However, hospital emergency service began not until 1878, and then in Brooklyn with one horse and wagon. The last few years have brought about important changes in this important branch of hospital work, the horse being displaced to make room for the motor vehicle. The chief advantage is increased speed, a most necessary element in ambulance service. Since the addition of motor vehicles to the hospital stables, the

average time for answering a call, including the return to the hospital, has been brought down to twenty minutes, surely a commendable record. In this service, the electric vehicle is again demonstrating its usefulness.



A very enlightening little magazine is the *Locomotive*, published by the Hartford Steam Boiler Inspection and Insurance Company, dealing, as one would naturally gather from the title, with the various phases of the boiler question as it affects this firm.

Each issue includes, among other things, a list of explosions for some months preceding, together with the essential data, such as the cause and the amount of damage wrought. Thus, for the months of October and November, 1911, eighty-five catastrophes are listed, in which twenty-six people were killed and ninety-three hurt, the majority of these being qualified as "severely injured." In another part of the same magazine is a summary of the inspectors' work for the year. From it we learn that 17,410 "dangerous defects" were discovered, and 653 boilers were entirely condemned. Since unconscious evidence is the best, no central station advocate could make a stronger presentation of the danger element in an isolated plant.



"Horses Shy at Steam Hoist" proclaims the headline of a recent evening paper, the narrative then describing a disastrous runaway following the blowing off of a steam hoist used in construction work. On the whole, we don't blame the horses.





Looking up Broadway from Bowling Green

# Submarine Thawing

**T**HE breaking of a month long water famine at North Brother Island, caused by the freezing of a six-inch main connecting the island with the mainland, constitutes what is the biggest electrical thawing job on record. The completion of this task by The New York Edison Company, after five days of effort, drew public atten-

tion to North Brother Island, became badly frozen, and despite all efforts to dislodge the ice by steam pressure, no results had been obtained. Meanwhile, as the days went by, the situation on the island grew serious, for here are located the contagious diseases and tuberculosis divisions of the City Hospital. Water carts were



North Brother Island Seen from the Deck of the "Riverside."

tion to an application of electricity, which is coming increasingly into demand each succeeding Winter. The circumstances of the North Brother Island achievement, combining as they did both great technical difficulty, the frozen main being 1,700 feet long, and dire need for remedy, provided a dramatic stage setting for the work.

It seems that during the cold snap preceding Lincoln's birthday, the six-inch main, which brings the water used by the different hospitals on

pressed into service and carried by boat to the island; barrels by the score were added and finally a government water boat came to the aid of the water-bound island. So alarmed, however, did the city authorities become, that orders were given for the removal of a large number of patients.

Precedents, indeed, were far from hopeful. Once before, in the city's history, had such an emergency arisen, when in December, 1892, this same water main was frozen. On that oc-

## The Edison Monthly

casion all attempts to dislodge the ice failed, and finally the pipe had to be taken up and relaid. The situation, in fact, was almost ideal to cause freezing and to prevent thawing. The pipe rests on the bed of the river; the salt water which flows continually over the main does not freeze till it reaches twenty-seven degrees Fahrenheit, while the water in the pipe freezes at thirty-two. On the North Brother Island

the work was under way. First a gang of carpenters put up a shack on the shore of the East River at 141st Street, which was turned into a temporary sub-station. A bank of four 100-kilowatt transformers was installed to step the current, which was taken directly from the company's mains, from 2,000 volts down to 200 volts. A water rheostat was also arranged, a cable carrying the current to the

point on the Bronx shore where the pipe was severed.

The principle of thawing by electricity is roughly this: both ends of the frozen pipe are severed, and electric current of proper amount and force is passed through it.



The Cables Were Connected to the Main Under the Water at North Brother Island

shore is the trouble spot, for there the pipe comes up out of the water, and at low tide is exposed to the regular air temperature. At this point the freezing began, stopping the flow of the water through the pipe, so that soon the entire mass was congealed.

On March 6th, The New York Edison Company received word from Mr C F Lacombe, Chief Engineer of the Department of Water Supply, Gas and Electricity, of New York City, to undertake the task of thawing this six-inch main. Within just one hour

The copper wire employed in the regulation cable has necessarily very low resistance; that of pipe metal, however, is very much greater. Accordingly, when current is turned on through the wires and piping, the resistance of the latter metal produces heat, and the heat eventually melts the ice. With an ordinary water main for house service, sufficient current can be tapped from a street main or taken from a storage battery to thaw the pipe in a few minutes. The North Brother Island situation, however, demanded far

more drastic treatment. All of the night of March 6th the men worked, and at 10:15 the next morning the current was turned on, some 800 amperes at 200 volts being used. Pumps were installed on the island and a pressure of eighty pounds was maintained in the main, the pumps, too, being operated by electricity. During the evening of the seventh, the current was increased to 1,000 amperes. On Friday, the 8th, another boost was given the current so that it was kept up to an average of 1,300 amperes, but still with no effect on the ice pack. Early in the afternoon the hopes of the men took a bound; steam could be seen issuing from the pipe on the Bronx shore. It continued to pour out for some time and seemed a sure indication that the ice was melting.

All that night the current was kept up to 1,300 amperes and on Saturday morning, the 9th, it was boosted to 1,500 amperes and 400 volts, the temporary sub-station being enlarged and two more 100-kilowatt transformers installed. At 11:00 o'clock on Sunday morning it was put up to 1,600 amperes at 368 volts, and two hours later to 1,800 amperes.

Still, however, the ice jam held. On Sunday an experiment was tried. A

length of pipe similar to the frozen main was packed solid with ice and closed up tight at both ends. This was let down to the bottom of the river and the same current passed through it as passed through the main. It was taken up after twelve hours and the ice was found to be entirely melted.

Monday, March 11th, was indeed "Blue Monday," for although the cur-



Hot Coffee and Sandwiches Were Served to the Men from One of The New York Edison Company's Lamp Wagons. The Men Worked Day and Night by Shifts

rent flowed into the pipe unceasingly, no result could be noted. Most, unexpectedly, at 6:20 A M on Tuesday, March 12th, came success. Without the slightest warning water started to flow from the mainland end of the pipe. The pumps on North Brother Island, which had been working all night keeping up a pressure of fifty pounds in the pipe, were forcing the water through. Within a short time the flow of water proved that the pipe was entirely thawed out.





This Shows How the Current was Transmitted to the Bronx End of the Frozen Six-Inch Main. For Five Days This Severed Pipe End was Watched Anxiously; on the Fifth day, Water Gushed Out

One thousand horse-power had been used, thirty-six times as much heat being required to melt the ice in the North Brother Island main as would have disposed of the same quantity of ice on land. The frigid water flowing over the pipe absorbed a huge amount of the heat, so that it was necessary to warm not only so many feet of the metal piping, but it was practically necessary to heat all of the surrounding water. Within twenty-four hours after the ice melted the water supply of North Brother

Island was resumed.

It is reported by the Imperial Trade Correspondent at Toronto that a Canadian Company has been incorporated to construct and operate an electric railway, ninety miles long from Mexico City to Puebla. Work will probably be begun this year.

As the outcome of experiments at Trollhättan, a 12,000 horse-power electric smelting plant for pig-iron is now under construction at Domnarfvet, Sweden.



On the Bronx Shore of the East River at 141st Street a Temporary Substation was Erected and Four 100-Kilowatt Transformers Installed



Lower New York Photographed from the Western Tower of Brooklyn Bridge





The Eighty Maiden Lane Building on Edison Service

## Eighty Maiden Lane

**C**ONTRASTED with its skyscraping neighbors, the Eighty Maiden Lane Building is "only" twenty-five stories in height, but while there are many that tower above it, very few exceed it in size. The Bankers' Trust Company, fourth highest building in the city, towers 529 feet above the street; the Eighty Maiden Lane Building only 308, yet the latter building is 1,250,000 cubic feet larger than its neighbor. The Eighty Maiden Lane Building is east of William Street and runs through from thirteen to twenty-seven Cedar Street. There is a frontage of 143 feet on Maiden Lane and 173 feet on Cedar Street, with entrances on both thoroughfares.

The new structure is nearly ready for occupancy. It was erected for the Fire Companies Building Corporation, and although insurance companies will occupy many of the offices, there will be a representation of many business interests among the tenancy. Insurance brokers, lawyers, manufacturers, publishers, and brokers, will all have offices in the structure. Some of those who have already leased space are the Continental Insurance Company, the Fidelity-Phenix Fire Insurance Company, Preferred Accident Insurance Company, Aachen and Munich Fire Insurance Company, the American Fidelity Company, Marsh & McLennan, Frenkel & Company, R C Rathbone & Company, Snow & Company, William Stake & Company, the Underwriters Printing and Publishing Company, and the American Law Library. The American Law

Library is one of the largest in New York, and its volumes will be at the disposal of the other occupants.

The structure itself is of steel-skeleton, fire-proof construction. Corinthian pilasters rise from the first to the fifth floor, shafts extend from the fifth to the twenty-first floor, and a second order of pilasters continues to the twenty-fourth floor and an attic story with bull's-eye windows tops the structure. The walls are faced with cream-colored enameled brick, and the ornamentation is of enameled surface terra-cotta. The building was designed by D H Burnham and Company, of Chicago, and was erected by the Thompson-Starrett Company of New York.

Electricity was used exclusively in the construction, approximately 1,000 horse-power in current driving the motors during the operation. About 8,000 lights are required to illuminate the 6,500,000 cubic feet of office space, and to keep all this air in a pure state fans and blowers requiring motors aggregating nearly fifty horse-power, are operated. There are thirteen elevators, of which six will be "express," all operated by electricity. The motors aggregate 387 horse-power. The pumps, vacuum cleaning system, and air compressors, are driven by motors requiring about eighty horse-power more. The Continental Insurance Company maintains a large job-printing department, equipped with motor-driven presses. All the current required for the maintenance of the building comes from the mains of The New York Edison Company.



The Hotel Clarendon, Park Avenue and Fifty-eighth Street, which has Abandoned  
Its Private Plant and Contracted for Edison Service

## Central Station Service for Hotel

**T**HE Hotel Clarendon, a building of comparatively recent construction, is unique, in that it combines with the apartment hotel, the bachelor's hall. It is one of the few buildings in the city in which such a combination is found. The lower floors are designed for the comfort of small families, but the upper floors are the sacred domain of the bachelor.

Situated in one of the most desirable parts of New York, Park Avenue and Fifty-eighth Street, only a block from the plaza of Central Park and close by a number of well-known hotels, the Clarendon attracts guests whose first desire is quiet and a certain degree of seclusion. It has only been during the past year and a half that the Clarendon has been known by its present name. Previously it was called the Oxford, a name it received at its opening about seven years ago. The change of title was made when a new lessee assumed the management of the business.

For a number of years the hotel operated a generating plant to supply light and power through the building. This required the maintenance of a high-pressure steam boiler, and it was not until last Summer, when the plant was closed down, that this boiler was dispensed with. The boiler was of sixty horse-power and was operated at a pressure of eighty pounds. Two generators, of an aggregate capacity of 120 kilowatts, supplied the current. This equipment, however, was run only between seven in the morning and midnight; during the intervening

hours the current was secured from the street mains by means of the emergency service. This was simply for those who "burned the midnight oil," and for the operation of the passenger elevator.

Negotiations for the closing of the generating plant were started by the representatives of The New York Edison Company as early as 1906. The first efforts were to induce the owner to permit a trial service. By this he could see just what the difference would be between Edison supply and that produced by his own plant. It was not until the Summer of last year that this was done. A two months' trial was made, and demonstration of the superiority and economy of central station service was so clear, it resulted in the complete closing of the old equipment. Current is now supplied for about 2,000 lights, for the operation of a passenger elevator and a freight elevator and to drive the house pumps.

A charter has been obtained by the San Francisco Northern Railway Company for an electric railway, forty-two miles in length, from San Quentin to Santa Rosa. The Company is capitalized at \$2,500,000.

Electricity is effecting a great transformation of the tramway lines in the United Kingdom. By its use during the last two decades the number of passengers has increased from 146,000,000 to 2,907,000,000. Net receipts twenty years ago were \$1,221,277; now they are \$25,675,946.



## Unleavened Bread

**U**NLEAVENED bread shall be eaten seven days; and there shall no leavened bread be seen with thee, neither shall there be leaven seen with thee in all thy quarters.

And thou shalt show thy son in that day, saying, this is done because of that which the Lord did unto me when I came forth out of Egypt.

And it shall be for a sign unto thee upon thine hand, and for a memorial between thine eyes, that the Lord's law may be in thy mouth; for with a strong hand hath the Lord brought thee out of Egypt."  
—*Exodus*, 13.

In these words Moses commanded the Israelites to observe the Pass-over from generation to generation forever in memory of their deliverance from slavery in the land of the Pharaohs.

One of the stirring tales of the Old Testament, one with which everyone has been familiar since childhood, is that of Moses, the deliverer of the tribes. The story tells how the Lord sent the ten plagues on Egypt because Pharaoh refused to release the Israelites from captivity. First, all the water of the land was turned to

blood, and after that came the plagues of frogs and lice, and then in succession followed the swarm of flies, the murrain of the cattle, the plague of boils, and hail and fire, the locusts, the darkness and, finally, the death of the first-born, the last of the ten plagues, which sufficiently melted the heart of Pharaoh for him to order the release of the captives. From the



As the Matroths Come Out of the Cutting Machine they are Taken up on a Pee! by a Deft Twist of the Baker's Hand and Placed in the Oven

ravages of this plague the Jews were spared by placing the blood of a lamb upon their doorpost. Then Pharaoh sent for Moses and besought him to depart out of Egypt with all haste. They "took their dough before it was leavened, their kneading-troughs being bound up in their clothes upon

their shoulders. And they baked unleavened cakes of the dough which they brought forth out of Egypt, for it was not leavened; because they were thrust out of Egypt, and could not tarry, neither had they prepared for themselves any victual."

It was many thousand years ago that the Israelites ate unleavened bread in the desert after escaping from "the house of bondage," but from that day to this the feast of the Passover has been appropriately celebrated annually in every Jewish household. It is, perhaps, one of the oldest of all religious observances. On the Jewish calendar the seven days of the Passover are from the even of the fourteenth to the even of the twenty-first of Nissan, the seventh month of the year. This comes at about the time of Easter in the Christian Church calendar. This year the Passover week is from the second to the ninth of April.

For those seven days no leavened bread will be tasted by nearly a million Jews in the City of New York. Other foods, such as soups, meats and vegetables are eaten as usual, but anything in which the leavening or fermenting process has taken place is forbidden. Naturally, this excludes wines, beer and other intoxicating

liquors, so for a week of feasting, Passover is an exceedingly temperate one. The main food is unleavened bread, or as it is almost universally known, the matzoth.

It has been estimated that approximately 15,000,000 pounds of unleavened bread were consumed in New York City during the last Passover week. From fifty to a hundred pounds of matzoths are eaten



A Matzoth Oven Operated by Electricity in the Factory of Horowitz Brothers, 371 East Fourth Street. The Matzoths are Placed in the Oven Through the Long Opening

in every family, according to its size, in the seven days. The demand for so great a quantity of this particular kind of food has made the manufacture of it a sizable industry. One factory alone, where matzoths are made, that of the Horowitz Brothers, at 369-373 East Fourth Street, turned

## The Edison Monthly

out nearly 3,000,000 pounds of them for the last Passover. In the process of manufacture 16,000 barrels of flour were used.

This concern, like other matzoth factories, operates only about five months a year, its activities extending from about the middle of October to the same time in March. Although matzoths are eaten to a certain extent throughout the year, the amount is but a very small percentage of what is consumed during Passover, so there is no call to run the factories for the rest of the year.

About two weeks before Passover begins, several thousand little stores open throughout the East Side for selling matzoths. Nothing else but matzoths is sold in them, and when Passover ends, they go out of business. Their stock consists of unleavened bread in two forms—whole matzoth and matzoth meal. From the meal the Jewish housewife bakes cake and other delicacies. The meal is simply the matzoths which become broken in baking and packing, ground up and put into bags.

The matzoth itself is nothing more or less than a biscuit of flour and water. The proper quantities of these two ingredients are put in a mixer, the flour

used being the finest wheat procurable. The matzoth dough is notable for its dryness, being much less moist than ordinary bread dough. When taken out of the mixer it is placed in the kneading trough, where it is kneaded mechanically by passing back and forth between steel rollers. It then goes through the pressing machine from which it emerges in a long strip of the correct thickness and the width of two matzoths. As the strip of dough comes out of the pressing machine it loops into the cutter, and out of this contrivance come the unbaked matzoths all cut, marked and punched with air holes.

There is a continuous strip of dough



Mixing the Dough for Matzoths. There are Many of these Electrically Operated Mixers in the Horowitz Factory. Beside the Mixer is a Device which Lowers into the Pail the Correct Amount of Flour

running from the presser into the cutter and out again in the form of matzoths. As fast as they come out they are taken by the bakers on peels and put in the oven. A temperature of 600 degrees Fahrenheit is maintained in the ovens, and after three minutes the crackers are baked crisp and brown.

The interior of the oven is somewhat like the inside of the paddle-box of a side-wheel steamer.

There is the big twelve-bladed wheel revolving on an axis, and at the extremity of each blade a tray is suspended so as always to hang level, even when the wheel is revolving. The trays come before the opening, one at a time, and are loaded. After a tray has gone all the way around once, the matzoths are ready to come out. Accordingly, when it arrives at the opening again, the cakes are taken off and sent down a chute into the packing room. There the broken ones are sorted out to be ground into matzoth meal.

The operations just described are as seen in the factory of the Horowitz Brothers, in East Fourth Street. There everything is done electrically, from mixing of dough to running of the ovens. There are two large ovens in use, while a third, of different type, also electrically operated, is being tried out and perfected. Not long ago



New Type of Oven Now being Experimented with at the Horowitz Factory. The Commutators of All Motors are Enclosed in a Metal Case so that the Flour Dust will Not Settle on Them

a thirty-five horse-power engine used in this factory was abandoned, and motor-drive adopted. This establishment has had a remarkable growth. It was founded in 1885 by Jacob Horowitz and is now conducted by four sons and a son-in-law of the founder. The first year in business the total output was 5,000 pounds of matzoths. This year it has been 5,000 times that amount.

During the week of the Passover, all the synagogues make a practice of distributing matzoths among the poor of their various neighborhoods who have not the money to purchase them from the dealers. A number of Hebrew Societies also supply them to the poor without cost, and there is one organization, known as the Passover Relief Society, the particular work of which is to supply matzoths to the poor Hebrews of New York City.

## Signs by Night

FROM Boaz, advertising his kinsman's parcel of land with a "Ho, such a one, turn aside, sit down here," to the popular magazine of the present, which, in the stilly night, long after the looms of labor are silent,

As the Spectator puts it in the *Outlook*, it is "the every-day name for my profession," but, he adds, "its true name is psychology." This remark is illuminating. In particular, it discloses the cracks and fissures



This Sign, Erected on the Side of the Charles Building, is Fifty-two Feet by Twenty. There are 610 Lamps in the Entire Sign, 610 of Them for the Lettering and 310 Form the Figure of Mercury

offers its allurements on printed page, from talking of trade in club and reading room and family circle,—from the day of Boaz and Naomi to the night of the modern advertiser it is, indeed, a far cry.

Advertising is no longer one of the ways to secure business; it is business. Without advertising the beginning of business is hazardous, the middle is full of sorrow, and the end is certain.

which divide a psychology of advertising by day, from that which more surely locates by night the ganglia wherein are situated those uncontrollable impulses to buy that are the life of trade.

Between the two species of advertising there is, in fact, a great gulf. Consider an electric sign, flashing its myriad lights across the paths of thousands of nocturnal wanderers





A Vertical Sign, Forty-one Feet by Thirty-two inches. Containing 195 Lamps

on the Great White Way, each light a tongue, uttering to the passer-by the one word, Buy! Is any smallest convolution of the most penurious free from its reiterated influence? Obedient to the light which shines, even the sordid and gainful loosen their purse strings, and manifest a generosity or reckless self-indulgence which is impossible by day.

Would you compare an electric sign with a magazine advertisement—even the most seductive? As well compare the sun to a bottle of ink. True, the sign is local, and therein lies a slight disadvantage, for the magazine advertisement is scattered broadly. But in this fixity of the electric sign there is also an advantage which it has in common with all local signs. Its stimuli are repeated, and from its tentacle rays, which reach out to clutch the wayfarer, there is no escape.

There is also the ordinary local sign of day advertising. This may be of sombre hue, or it may convey its message in gilt, in flaming red, or in the

unaesthetic yellow at present in vogue. In any case it is a make-shift of the shop-keeper and advertiser, whose real dependence is upon the night. It is then, when the shops are closed and the crowds, once more freed from the weary round of prosaic work-a-day ideas, betake themselves to the street, that business begins in earnest.

Man is, by predilection and hereditary right, a nocturnal animal. The labor that he performs under the sun ceases with its setting. Then he abandons himself to the subtle influences of the night, and becomes what he most truly is, a suggestible animal, subconsciously played upon by the world about him. It is at night that he solves his problems; at night that he buys and sells. How? Why, in a thousand ways that have no visible relation to office or counter or any other place of exchange. These only provide the necessary machinery by which the transaction, subconsciously begun or continued—it may be even in sleep—is brought to completion in



The Witty Sign, at 54 Eldridge Street, is One of the Largest on the East Side



A New Type of Reflector Sign,  
Used by the Ulman Market at  
35 Greenwich Street

the course of the day's business. It is in the leisure moments of life, and chiefly in the hours between work and sleep, that the bias is given the mind for the preferences and decisions which issue in some important daylight activity.

The late Professor William James, of Harvard, in a much-quoted passage in his *Psychology*, maintains that we

learn to skate in summer and to swim in winter. It is so with thinking. The problem, too difficult by day, will somehow work itself out in the sublit recesses of our nocturnal consciousness to a solution. What is called "consciousness" is simply a vigilant and somewhat officious inspector, economical of his time, and present only in the regular way of duty, or where there are observed defects in the mechanism that normally controls action. The clothes which you purchased to-day were, in reality, bought yesterday, last week, a month ago—at any rate, as regards your share in the transaction—though of course you could not wear them until a mechanical matter of business routine had been attended to in the customary way.

The chance comment of a friend, the fleeting glimpse of a well-dressed window, the electric flash of a name and an apt suggestion—these were the real factors in the purchase. The sharp struggle at the tailors between gray and blue, the higher price and the lower, were simply the curtain scene to a play which had previously been enacted without your knowledge.

Thinking in this way, by means of the impressions which stream in from the outer world—and this is almost the only kind of thinking that we do—is a matter of leisure and relaxation and open-mindedness, of rest and dreams and night. Then the attention is relaxed, and the harried and worried brain, unresponsive by day to the wily efforts of the advertiser, at night throws open its doors to the senses, admitting impressions which the course of daylight associations excludes.

Here, then, is the opportunity of the advertiser by electrical methods, and a golden one it is. Only a few brief hours are open to his influence, but these are the most suggestible ones of the twenty-four. If he combine the artistic skill of the advertiser—it is not here asserted that all advertisers have that skill—with a studious regard for the psychology of his fellow-mortal and the peculiarities of his nocturnal consciousness, he will see vistas opening before him which beggar description in any but electrical terms. His predecessors of the paint and ink fraternities have performed yeoman's service with brush and pen, but they are handicapped by daylight and the impervious day-consciousness of the human toiler.

In particular, lack of attention to artistic effects has left a trail of outraged aesthetic feeling behind. The advertiser by electricity must and will profit by the mistakes of the past, and though he has committed some errors himself, and succeeded in affecting combinations of form that are almost as ugly as a yellow sign, the very material with which he works is an invitation to progress, and it is a safe prediction that the near future will find him an important factor in advancing civic righteousness in the display of form and color.

Parisians who do not wish to have their slumbers disturbed by the ringing of their telephone bells, have resorted to the simple expedient of removing the receivers from their hooks at night, thereby causing untold complications. Besides the increase in the consumption of current, which resulted from keeping the signal lamps



The Hotel Aberdeen, at 17 West 32d Street, Uses a Vertical Sign Fifty Feet by Three. The Lettering is Four Feet High and 400 5-watt Tungsten Lamps Make a Brilliant Showing

in the central battery exchange burning all night, and the danger to the working of the whole system, the same subscribers found their lines disconnected in the morning. They must now choose between the convenience of a telephone and the inconvenience of being called up at night.

## Ambulance Service Improvements

**P**OLICE Headquarters?  
 "This is Patrolman O'Grady, Shield No 6666. Send an ambulance to Broadway and Fourteenth Street. Man under a trolley car."

Brief as is this telephone message, it serves to set in motion the machinery necessary to bring medical aid to any person stricken in the streets of New York City. Police headquarters transmits the message to the nearest hospital, in this case the New York Hospital; the institution calls out its ambulance; the surgeon jumps aboard, and in hardly more than a minute from the time of the accident, relief is on the way. It is a matter of record that calls have been answered and a patient brought back to the hospital in six minutes.

In the course of a year, New York City, through its emergency ambulance service, attends nearly 100,000 sick, injured or destitute persons. Last year, according to the report

of the Board of Ambulance Service, which directs the work, 96,424 calls were answered. To meet the requirements of this work, ninety-five ambulances are maintained. Of these, twenty-eight are of the motor type,—sixteen being gasoline and twelve electric. Since the adoption of the motor ambulance the time required to answer calls and return to the hospital has been brought down to an average of twenty minutes. Just what it was when the horse-drawn vehicle did all the work, no one has ventured to estimate.

The first electric ambulance in the city was placed in service thirteen years ago at St Vincent's Hospital. The vehicle was a donation from the late Edward Kelly, and for five years it was used in the emergency work of the institution; then when it commenced to show signs of wear it was replaced by another gift—this time a gasoline car.

In 1902, Mt Sinai Hospital, a private institution, placed a "G V" ambulance in service for transfer work exclusively. This ambulance,—the dean of electrics—averages only about 400 calls a year, is still in commission and the hospital depends upon it for all its work. The Society of the New York Hospital, the oldest institu-



The Lansden Electrics Recently Installed by the Presbyterian Hospital





**The First Emergency Ambulance in New York. Placed in Service in 1878 at the Long Island College Hospital in Brooklyn, and Still Responding to Calls**

tion in New York, having received its charter from George III in 1770, maintains the largest fleet of motor ambulances in the city. This consists of four electrics, augmented by three horse vehicles. Three of the electrics are operated from the main hospital on West Sixteenth Street, while the other is attached to the House of Relief on Hudson Street.

The first of these was placed in service in 1905, another was added in 1908, and two more in 1910. Two were built by the Lansden company and two by the General Vehicle company. The Hudson Street ambulance, a "G V," was commissioned in July, 1911. From July 3d to October 15th, it

answered 1200 calls. Its district includes the sixteen miles of water-front on two rivers at the southern extremity of Manhattan Island, and all the interlying territory. Since the heavy trucking between steamship piers and wholesale business houses requires block pavement, in this district are some of New York's worst streets,

The years 1910 and 1911 saw a big increase in the electric ambulance service in New York. The Presbyterian Hospital purchased two Lansdens in August, 1910. The Department of Charities assigned a Lansden to Bellevue Hospital in July, 1910, and a De-



**The Dean of Electric Ambulances, a "G V" Which Has Been in Continuous Service for Ten Years**





Snapshot of an Electric Being Driven by a Young Woman after One Lesson. The Car is a Rauch and Lang



Snapshot of a Rauch and Lang Electric in Central Park after the Last Snowfall of the Season

troit to the Harlem Hospital in 1911. The Kings County Hospital in Brooklyn has used a Studebaker for three years, and the Methodist-Episcopal Hospital, a Detroit since 1911. Early this year, the hospital of the Rockefeller Institute purchased a Detroit to use in transferring patients from other institutions.

It was not until forty years ago that any ambulances at all could be seen in New York. Prior to 1870, the accident victim was carried to the hospital

on a shutter, or in a market wagon, while the first ambulances were intended for the exclusive use of private patients. The unfortunate accident victim, though, was still dependent on the sympathies of strangers.

The first emergency ambulance was assigned to the Long Island College Hospital, in Brooklyn, in 1878. Its district was on the water-front of the city, where injuries of every conceivable nature were of daily occurrence. For a number of months, the Brook-

lyn ambulance was the only one owned by the city, but as time went by, more were added, till now there are ninety-five in service in the five boroughs. The first of the motor vehicles was placed in service thirteen years ago, and led to a complete revolution in the ambulance service.



An Electric 'Bus for Hotel Service. Detroit Car Made for the Hotel Brazos, Houston, Texas

During 1911, the ambulances of the city answered 96,424 emergency calls. Of these, 57,221 were in Manhattan, and 26,806 in Brooklyn. This equals 261 calls a day, which means that each ambulance averages something less than three calls a day. Of these, 35,569 were answered by city hospital ambulances, and 60,855 were answered by the ambulances of the pri-

## An Electric 'Bus at Houston, Texas

SOMETHING quite new is the electric hotel "bus" of the type recently adopted by the Hotel Brazos, at Houston, Texas. It is so designed that fourteen passengers can be comfortably accommodated, while the baggage rack on the top



The Latest Addition to New York Electric Ambulance Service was Commissioned last February by the Rockefeller Institute

vate institutions, the city paying a certain sum per call.

SIXTY-NINE per cent of the General Vehicle Company's 1911 business consisted of re-orders, and on the first of February there were 671 vehicles owned by but twenty-five customers. On the basis of these figures, the advertising department is using as a catch-word, "who sells the fleets?"

means that fourteen suit-cases or "grips" will not be dragged over the passengers' knees. The vehicle transports the guests between the hotel and the railroad station, and is greatly appreciated because of its smooth and noiseless operation.

The interior of the 'bus is electrically lighted, and the sign on the top serves as an advertising medium, attracting incoming guests as they leave the train at night.

## Lunch Room Attractions

**B**EEFSTEAK JOHN and Hash-house Harry have seen their best days as caterers to the ravenous midday appetite of Father Knickerbocker, and though "Adam and Eve" are still subject to daily shipwreck, just as the time honored complement

one man made away with a sandwich and a cup of steaming coffee in less than a minute, but the record has never been accepted as official, since he neglected to stop at the cashier's desk in his haste to leave the lunch room.



The Detroit Lunch, Broadway near Fourteenth Street, is Another Example of Illumination for Lunch Rooms. A Sign Over the Place Attracts Customers at Night

of "one in the dark" is "ham and"—still, the halcyon days of the bean are on the wane. The old hole-in-the-wall lunch room, with its flickering lights, its smoky atmosphere, its greasy walls and sawdust carpeted floor, is a thing of the past. True it is, they may be met with occasionally, but so may the historic New York horse car.

Regardless of everything else, the New York business man eats in a hurry. It is a matter of history that

One day last January, two hundred and fifty people filed past the cashier's window of a certain quick lunch establishment, during the fifteen minutes preceding 12:30. Nor was that an unprecedented condition; in fact, if the number should fall much below that figure, the lunch room would soon be on its way to the receiver.

"Serve the people in a hurry and have your room white and clean," might well be the motto of any one of



the thousand or more lunch rooms that have become so popular in the past ten years. Regardless of physical after-effects, speed in service is the first demand of the clerk or merchant at lunch, but with it all he wants a clean place to eat.

Ten years ago, there was opened in New York a restaurant, the like of

himself. Display cards told at a glance what was the day's menu, all the viands being served from a counter at one end of the room. The order given,—sandwiches, beans, pie, coffee, crackers and milk—it made no difference what—and almost before the words had passed, the food was before you. Then followed a more or



The City Lunch, 16 West Eighteenth Street, Seats About One Hundred Persons and Serves a Thousand a Day. Tungsten Lamps, in Special Fixtures, Together with the Tiling and White Table Tops Make the Place One of the Brightest in the City

which had never been seen before. Briefly, a large room white tiled, with broad armed chairs along each wall and down the center, and the cashier's desk near the door. The table-chairs, if such they might be called, were something new to the first of the noon-day crowd that entered the place, but the novelty of that innovation soon wore off when it was discovered that there were no waiters to wait, or yet to wait for their tip. Each man was for

less perilous trip, with a plate and a bowl and cup balanced to a nicety till the chair was reached, where the adventurer proceeded to bolt the repast.

From that first dairy lunch, which, curiously enough, was named for a leisurely Southern city, there have come many others, all operated on the same plan and, like the original, many of them named for cities. To know the names of all these places would be

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a liberal study in geography. As the number of places has multiplied, their patronage has increased. At one period, the business between twelve and one o'clock became so great that many of the places were literally swamped. To offset this condition, special inducements were offered to bring some of the people between eleven and twelve, or one and two o'clock; some places offering discounts, while others provided music. This type restaurant is known as a "chair lunch." A certain revenue is expected from each chair, and to bring in this amount the chairs must be kept constantly occupied.

Although the chair lunch room and its close competitor, the dairy lunch, serve the vast multitude of New York's hungry horde each day, still

these do not control the business by any means. These restaurants are commonly called "quick lunch," but the last word in regard to speed is to be seen in New York's financial district, almost within hearing of the various exchange buildings. Patronized chiefly by messenger boys with ostrich-like digestions, the frankfurter and sauerkraut vendor holds the record for lightning service and low prices. The whole savory mess, with an accompanying cup of cocoa, may be had for less than a nickel. There has recently appeared upon the streets of the city the hot potato vendor, who bakes "'em with the jackets on" and serves an apple for dessert.

Then there is the free lunch counter, about which little need be said; likewise the automatic restaurant,

where one deposits a coin in the slot and a meal slides out, and the place where one serves himself and regulates his bill by his own native degree of honesty.

Despite the vast number of lunch rooms each is crowded to the doors during the noon-time rush.



The Parquet Floor in the Show Window of the Broadway Office of The New York Edison Company is Polished Every Monday Morning. A Crowd Always Gathers to Watch the Operation



## Next, One Scrubs the Floor

ONE of the first considerations in a fire-proof building, or in the remodeling of an old building to make it fire-proof, is the elimination of wooden flooring, marble and mosaic, terrazzo, and various composition floors being substituted. In this connection was encountered the problem of devising an economical method of polishing and finishing, for manual labor was found slow, expensive and generally unsatisfactory. Several kinds of polishing and finishing machines have been placed on the market by different manufacturers, among them the "E-Z," an electric floor scrubbing and polishing machine, made by the John Herr company of Philadelphia, designed not only to grind stone floors, but also to polish those of wood.

Two types of this machine are built, one for stone and cement floor work, and the other to polish parquet flooring. This apparatus consists of a one-quarter horse-power motor mounted on a shell containing a revolving base, and to this is automatically clamped a disc or brush, as may be required. All the working parts are enclosed in a dust- and water-proof case, the gears and ball bearings being noiseless and requiring but little attention. The machine can be operated from any electric lamp socket.

The brushes may be run in oppo-



Scrubbing a Mosaic Floor with the E-Z Two-in-One. Water is Supplied from the Reservoir Attached to the Handle of the Machine and Sprays Only the Area Under the Brushes. Soft Hair Brushes are Substituted for Floor Waxing and Polishing

site directions, making it easy to control. The body of each machine is flexibly connected to the iron handle, allowing the brushes, which may be used up to the base-board, to adjust themselves to the curvatures of the floor. It is said that the polishing machine will scrub one hundred and fifty square feet of flooring in a minute.

The grinding equipment is constructed on heavier and more substantial lines, and in place of the brushes, carborundum blocks are attached to the revolving discs. One of these machines is capable of doing the work of fifteen skilled workmen in the same period of time.

### Electric Heater Guarding Sprinkler System

**O**N the roof of a six-story building, exposed to the biting winds from off the North River and buffeted by every gale that blows, stands a great tank of water—protection against the midnight blaze, for this tank is connected with the sprinkler system of the Trinity Corporation loft building at 388 Hudson Street. The equipment in this building is known as the "dry system," that is, no water is in the pipes in the building until a fire sets off one of the metal caps. This is necessary in buildings where there is no heat, because the water would freeze.

When the system was installed last summer one of the problems that confronted the owners was to

make some arrangement to prevent the water in the tank from freezing during cold weather. It was decided to install a number of electric heaters, and experiments were made to learn just how these could be most effectively placed. The best results came from heaters set in the eighteen-inch air-chamber at the top of the tank, and attached to the underside of the air-tight cover. Four heaters, of 1,200 watts each, were installed with a thermostatic control to keep the temperature of the chamber always at thirty-four degrees F.

The first severe test came on January 5th and 6th, when the cold and high winds froze almost everything solid. The effect of the zero temperature on the tank was watched with great interest, and the confidence of the electricians in their heaters was justified when the water was found to be entirely free from ice. The thermostat had performed just as it had been expected to. As soon as the air in the chamber fell to a temperature of thirty-four, the thermostat acted automatically and set the heaters in operation. When the air had warmed sufficiently the current was shut off until it should be needed again.

Water for the tank is pumped to the roof from the cellar and to keep the pump room at an even temperature of thirty-eight degrees, an 800 watt heater was installed. The heaters were supplied by Roger Williams, of West Forty-second Street, in conjunction with the Heating Bureau of The New York Edison Company. This is believed to be the first instance where such measures were employed to keep a roof tank from freezing.



Electric Heaters in This Exposed Tank Prevented the Water Freezing During the Coldest Days of the Past Winter

## The Mechanical Stenographer

**W**HEN the first dictation machines were recommended for business use, it was with argument to the effect that, by means of this contrivance, the purchaser would be able to do away with more expensive stenographic help.

The result might have been expected. Aside from slight mechanical defects, which the users soon discovered, it was quickly learned that a slow or ignorant typist could not be transformed into an intelligent and careful worker just by substituting a vibrating disc for her pencil and notebook. Accordingly, it is not surprising that the initial patrons of the dictation machine were disappointed. True, they were getting some of the promised benefits, but they had not achieved the impossible.

It is now more than a score of years since these earliest machines were placed upon the market, but instead of succumbing to the first disillusion, the dictating machine has succeeded in making a place for itself.

The first step was the elimination of mechanical defects. This done, the apparatus was recommended on its own merits as a machine, and not as some marvellous agency by which the lazy could be made industrious and

the poorly trained worker, by sudden metamorphosis, a marvel of speed and intelligence. The argument now is this. Keep whatever clerical force you have, but whether your stenographer is an expert, or a recent business school graduate, with the assistance of the dictation machine, she will be able to handle more work than she could before, and to do it better.



Mechanism of the Dictaphone, Showing Motor

The dictation machine replaces the notebook and pencil of the stenographer, but it cannot manufacture intelligence. The record may reproduce most accurately the matter dictated by the employer, together with his instructions for its transcribing, but unless the girl has the brains to grasp them, she will not do much better than she would with her own notes. If a typist is careless, and spells badly, her fault will not be mended because she hears the dicta-

tion from a machine rather than from the original dictator.

The idea that the dictation machine is something for cheap help alone prevails very largely among stenographers themselves, who doubtless remember only the early predictions and promises made by the first manufacturers. The files of the employment bureau maintained by the Dictaphone department of the Columbia Phonograph company provide a striking refutation of this popular conception. Among these cards, the writer was surprised to find only a very few which called for a wage less than twelve dollars, while many showed that the applicant commanded twenty to thirty dollars a week.

"It is one of the mistakes most frequently made by people unacquainted with the modern dictation machine," said Mr Otto Brushaber, New York manager for the Dictaphone, "to assume that the Dictaphone is intended only for routine business letters. As a matter of fact, it is used by scientists, physicians, chemists, and similar professional men, for their most technical reports. In these cases, of course, the operator must be capable of transcribing such copy."

The mechanism which does this kind of work has been developed far beyond the first dictation machines offered to the public several years ago. While the entire apparatus occupies about as much space as a typewriter, the real dictaphone consists of a small disc or diaphragm, hardly larger than the face of a grandfather's watch. Against this is securely fastened a setting equipped with two sapphire points, which form the essential parts of this modern dictation

machine. Speaking through the tube, the voice of the dictator causes the diaphragm to vibrate, these oscillations being transmitted by means of the sapphire, leaving a record upon the cylinder.

Reversing the order, the machine reproduces the sounds when the sapphire reproducer ball is placed against the record, the voice being conveyed by the ball to the disc, which in turn transforms the vibrations into sounds through the sound box. In the Dictaphone, this entire reversal of process is accomplished just by turning a lever.

With this perfected mechanism, the claim is made that far more rapid work can be done than by the ordinary method of notebook and pencil. Figures given out by various companies employing the Dictaphone bear out these assertions. Since the Claim Department of the United States Express Company installed twenty of these machines, it has been found possible to handle every mail on the day that it is received, for the first time in the history of the company. The increased output amounts to a saving of about \$200 monthly.

In the Southern Pacific Railroad Company more than 500 dictation machines are used with an increased capacity of a hundred per cent. Shorthand note taking is entirely forbidden by the Hill Publishing Company, Dictaphones being employed exclusively. The departments of chemistry of both Columbia University and New York City College prefer to dictate their very technical matter to these machines, while surgical operations at Roosevelt Hospital are reported thus, for the sake of accuracy,



**The Washington Statue on the Steps of the Sub Treasury Building,  
Silhouetted Against an Arc Light**





The Building of the City



# THE EDISON MONTHLY

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# Editorial

## *The Edison Monthly*

Published by

## *The New York Edison Company*

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The recurrence of coal-strike rumors both in this country and abroad has again called public attention to the great waste of fuel involved in the ordinary conduct of life and business. Until a few years ago, to all but scientists, coal seemed one of the world's unlimited resources, like air or ocean water. To-day, the danger of possible exhaustion at some future time is emphasized on all hands.

Aside from this conservation of the resources for distant generations, we realize that there is a very practical saving which could be made here and now, not only for the benefit of those to come but also to our own great advantage.



Referring to the enormous waste of coal in home and factory use, a famous English engineer suggested the dividing of that territory into, say, a hundred central stations, for the production of light, heat, and power. This was not recommended as some Utopian scheme to be realized "when molecules turn back," but as a practical suggestion.

The proposal is based on the well-known fact that coal can be managed much more economically in large quantities with the proper machinery, and that handled otherwise a large amount of potential heat energy is wasted. It was even prophesied by the author of this scheme that in the not too distant future fines would be imposed on individuals who burned coal within the territory supplied by one of these huge central stations.



The ingenuity of stage mechanics in securing realistic and beautiful effects is only too well known, and it is generally understood that these for the most part are dependent on electricity. While the efforts of the famous producer are applauded, the trials of the electrician when the company goes "on the road" have hitherto remained an unwritten chapter in the history of dramatic art. A recent issue of *Popular Electricity* describes some of the contrivances resorted to by the electrician when the production is playing what is called "the kerosene circuit."

The term covers towns where no regular provision is made for current behind the scenes, though it may generally be obtained from the street railway company. Here starts the trouble, for the voltage is generally four times that for which the setting appliances are rated. The electrician may then construct an emergency rheostat out of a barrel, some salt and water and two pieces of sheet metal;

or where this is impossible he may even have to sink his wires in the mud of the nearest "crick."

But when all is said and done, no manager would for a moment consider returning to the genuine lamp-lit kerosene theatre.



Changes are being inaugurated in the city's system of ash removal in which electricity will play an important part. The first improvement on custom will be the abandonment of the little old familiar two-wheel ash cart and the substitution of a wagon holding six times as much.

On the level streets of New York this is entirely practical, serving to reduce the number of trips to the dumping docks, and more especially to lessen the amount of "empty" returns. Emptying these five-ton trucks, however, requires some mechanical force to tilt the wagon-bodies, and this is now being done by means of motor-driven hoists.



The ubiquity of electricity is something that not only surprises, but which sometimes annoys people not interested in science or economics. "The trouble with you electrical fellows," complained an artist the other day, "is that you see it everywhere. Show you a picture of the wharves at London and you say something about electric hoists."

At this juncture, the artist and his acquaintance were walking along Fifty-ninth Street, opposite the wooden framework locating the site

of the national Maine Monument.

The artist paused in his tirade, "Hello, what's that? Can you read the placard?" he asked.

"Not at this distance," responded the man of science. "But I suppose that's where the Maine Monument is to go."

"And no doubt they're building the foundation by electricity," the artist threw in scornfully.

The man of science hesitated. "I don't know about that, but they are cutting the marble by motor-driven tools." The artist's reply has no place in these decorous pages.



One of the striking features of the Women's Industrial Exhibit, held from March 14th to 24th in the New Grand Central Palace, was the comparatively little space given to things purely domestic. Unusual trades of many kinds, representing in many cases both ingenuity and artistic handling, were there a-plenty. Woman's unofficial part in the government was there in the form of exhibits of the Women's Municipal League; her part in education and philanthropy was to be seen everywhere; her place in many needle trades, particularly the poorly paid ones, was only too evident. But the mechanism of housekeeping itself, which is, after all, an important feminine industry, was left to two public service companies. There was an exhibit of cooking by gas, while at the other end of the same aisle was this Company's display, showing household apparatus applicable for all kinds of domestic use.





The Cathedral of Vienna  
*Etching by Luigi Kostner*

*Permission of Franz Hanfstaengl*





Lower New York from the Brooklyn Shore

### Downtown at Dusk, Seen from the River

By Frank A Farnsworth, Jr

As up the harbor, isle to isle, steals slow  
The softly deep'ning mystery of night,  
The City, fading in the fading light,  
Looms vast and silent from the shores below.  
Its lofty outlines dim upon the sight,  
When suddenly a thousand windows glow  
Across the dusk, and gleaming row on row  
The glitt'ring wonder leaps from height to height.  
It is the wizard hour when near and far  
The day renews its life so soon to close,  
Each fair illumination as a star  
Lighting its shadowed pathway e'er it goes.  
Now tower by tower the darkness claims its own,  
The vision vanishes, the lights have flown.

## Motor Drive in Vocational School

THE electrical installation at the New York Vocational School for Boys, 138th Street, near Fifth

shops—namely, the use of a small unit for each machine instead of running a number of machines from a single



The New York Vocational School for Boys

Avenue, Borough of Manhattan, stands for an excellent principle in the application of motor drive to machine shops, turning mills, pattern-making shops, blacksmith shops and print

large unit by means of the now antiquated shaft drive.

In discussing the equipment of the Vocational School, Dr Charles J Pickett, the Principal, expressed the

opinion that motor-drive has marked a great step forward in the industries both from an economic standpoint and in bettering labor conditions. He favors the individual unit in that it makes for simplicity and economy of operation, economy of space, the maximum of efficiency, provides for increased equipment and insures constancy of operation in that the incapacitating of a motor means only the disabling of a single machine. For these reasons, as well as for the ease and small expense with which all machines may be shifted, he believes that the cost of the original installation is more than counterbalanced. In the Vocational School the small unit drive has the additional value of training the boy to run his own machine besides tending to make the operator and the machine a harmonious unit.

The Vocational School, which at present has an enrollment of more than 500 boys, is one of the most admirable works carried on by the Board of Education. The school is intended for boys who desire an education that will prepare them for industrial work as distinguished from an office position. The pupils are given chances to learn the elements of trade, and to study architectural, freehand and mechanical drawing, while continuing their general education along lines that will best fit in with this work. A course of instruction at this school unquestionably will increase a boy's earning capacity. It will also give him a training which he could not hope to secure if he started as an unskilled apprentice. Everything necessary for the training is supplied by the school; there are no extra charges.

The work is divided into three classes, vocational, drawing, and non-vocational. The vocational course includes woodwork, under which head comes house-carpentry and construction. Cabinet making and bench work, wood-turning, pattern making in wood, and the use of wood-milling machinery; metal work, which is subdivided into general machine-shop practice, sheet-metal work, forging, plumbing, and electric wiring and installation; printing, which is divided into composition and press-work, and last of all in the vocational course, book-binding.

The drawing course is divided into four branches, mechanical freehand, industrial design, and making and reading blue-prints. Under the head of mechanical drawing comes working isometric and architectural drawings.

The non-vocational subjects taught are trade mathematics, under which comes arithmetic, use of symbols and both plane geometry and trigonometry as used in trade; English, which includes business letters, reading, drill in oral and written expression, drawing of contracts and writing of specifications; industrial history and civics; industrial and commercial geography; applied physics and chemistry; simple bookkeeping and elements of commercial law.

In the wood-turning or lathe room there are fifteen machines operated by three-fourth horsepower units, a thirty-inch by four-inch grindstone, and a band-saw run by three-horsepower motors and a grinding machine which is operated by a two-horsepower motor. The printing room contains three presses, all of which are run by small units. The wood mill has a



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total capacity of thirty-four horsepower, the machines operated here being a universal grinder, a jig saw, two circular saws, a universal saw, a surfacing machine and a jointer.

The blacksmith shop is equipped with twelve down-draft forges and

drill, a combination grinder, four speed lathes, a cold cut-off saw, a sixteen-inch engine lathe, a hand-milling machine, a planer, a thirty-inch emery grindstone, two shapers and a tempering furnace operated by an electrically driven blower.



The Saunders Trade School, at Yonkers. The Vocational Training Movement is Spreading Rapidly

twenty-four anvils. A five-horsepower motor runs the blast for the forges, while a ten-horsepower motor operates a suction blower and a seven-and-one-half-horsepower motor runs the exhaust.

The machine shop contains twenty-five small motor drives representing a total capacity of thirty-four horsepower. The equipment consists of a fourteen-inch engine lathe, nine twelve-inch engine lathes, a universal grinder, milling machine, three drill presses, a multiple spindle drill, a single spindle

The fact that this large amount of machinery is conveniently placed in a comparatively small area is due to the use of the individual units for motor drive. The remarkable economy of space in the arrangement of this shop has been very favorably commented upon by several leading mechanical engineers. The plans for laying out the entire equipment of the Vocational School were made by the Principal, Dr Pickett. The building was never intended for its present purpose and a great amount of credit is due Dr

Pickett for accomplishing the necessary transformation.

A very large amount of the printing for the Board of Education is done by the boys in the print shop, while filing cabinets, game tables for the evening recreation centers and various kinds of furniture needed are made in the carpenter shop. The text-books that become dilapidated from use and age in the different high schools are brought here, assorted, missing pages supplied and turned out by the book-binding shop in new covers.

More than a thousand people in Yonkers are enjoying the opportunities for industrial education afforded by the Saunders Trade School. This school, which was erected, equipped and endowed by the late Ervin Saunders of Yonkers, N Y, provides courses of two or four years for any who desire to become

skilled workers in the industries. Mathematics and mechanical drawing, having a direct bearing upon technical skill, are emphasized; while other studies, such as English, history, civics and geography are also taught.



An Edison Service Apartment House at Park Avenue and Sixty-second Street. The Architect was Awarded a Gold Medal in Competition for the Design and Plans of this Building





Scene on the Dock of the Department of Street Cleaning at Forty-sixth Street and the East River During the Testing of the New Five-ton Ash Cart

### Perfecting the City's System of Ash Removal

**A**N interesting experiment is now being tried by the Department of Street Cleaning

which, in all probability, will result in some marked changes in the handling of the city's ashes. A familiar sight in New York streets is the little one-horse, two-wheel cart of the Street Cleaning Department. Apparently it has never occurred before to anyone that these carts are particularly small, and that consequently there must be a

considerable waste of time and effort in hauling such small loads to the dumping docks. Certainly commercial institutions doing a large amount of local transportation, regard this method of the Department of Street Cleaning as a poor means of accomplishing the work in hand, and wasteful as well.

The tendency among these concerns is to favor larger vehicles, thus reducing the number of empty-handed returns. This is easily possible in a city so level as New York, though of



This Shows the Body of the Cart Being Lowered Back into Position. A Seven-and-a-Half-Horsepower Motor in the Overhead Shed Raises and Lowers It

course, in a very hilly town, large loads are not generally practical.

This is the principle now being applied experimentally in the Department of Street Cleaning. A large four-wheel cart has been constructed which will hold, approximately, as much as six of the two-wheel carts. The body of this truck is

very deep, being slung somewhat below the axles. It is twenty-five feet long, not counting the tongue, and is drawn by three horses, the crew consisting of a driver and two loaders. About 126 cans of ashes are required to fill it, and on this basis it is possible for a statistician to reckon how many blocks, of so-many-cans-to-a-block, this cart will clear of ashes.

Emptying a wagon of this size is, however, a different proposition from dumping the little two-wheel vehicle, which is simply backed up to the edge of the dock, its body being tilted until the contents slide out onto the scow moored below. With a big cart, the huge body must be lifted to a position almost vertical, before the ashes will slide out.

The next problem to be solved was this: to find some means of raising one end of the body of a five-ton



The Laborious Method of Dumping Type of Cart Hitherto Used by the Department of Street Cleaning. Since it is Impossible to Tilt it Sufficiently by Hand, Nearly Half the Contents Must be Shoveled Out

truck, on a fulcrum, high enough so that the contents of ashes will slide out; given, a truck on a dock and a flat-scow beneath. The answer was electricity. A seven-and-a-half-horse-power motor was set up in a little triangular shed, out on the dock at Forty-sixth Street and the East River. In connection with the motor is a hoisting apparatus, which it operates. This hoisting arrangement is so constructed that it grasps two iron rings on either side of the body of the truck, just back of the front wheels, while a bar across the top prevents it from swinging. The time required for the operation is no more than for dumping the two-wheel cart. Should the municipal authorities decide to adopt the plan, it would be possible to empty all the carts coming to any dock, by means of two motors mounted on an overhead carriage moving like a traveling crane.

# Leisure Capitalized

NEW YORK is known the world over as the city of hurry. In its financial district, millions are made and lost within the short space of a banker's workday. Over night, figuratively speaking,

even though he knows that there will be another in a minute. He runs to his office, he runs home. He eats his meals in fifteen minutes and begrudges the time thus spent. He runs to the theatre and if the play does not possess the speed of the Ben Hur chariot race, he calls it dull.

Nearly everything has a market value in New York. Curiously enough, in spite of, and at the same time because of the usual rush and dash, leisure too has a very high market price and has been capitalized in a great many ways. While the masculine sort is



Decorative Arrangement of Elevators

towering office buildings rise out of the earth. Offices are rented before a spadeful of soil has been turned, and while the fortieth and fiftieth and sixtieth stories are as yet unfinished and before the roof is on, tenants are moving into the lower levels.

Nothing can be done too quickly for the typical New Yorker. His subways and elevated roads must have express service and if the trains run slower than a mile a minute he frets and fumes. He runs for a train, dashing through a half-closed gate,

very extensively commercialized on summer afternoons at every local baseball diamond, feminine leisure, capitalized, may be seen in shops and tea-rooms that line Fifth Avenue. The typical feminine manifestation of haste is supposed to be afforded by the bargain counter. Deluded by the impression of buying below cost, the shopper rushes from counter to counter in a pushing, elbowing, scrambling throng. So often has she been described in this role, in picture, prose and verse, that



it might seem there were no other ways of shopping in New York.

Yet the percentage of women whose nerves can stand the strain of a bargain day encounter is indeed small, comparatively speaking. Long ago a number of dry goods merchants became aware of this fact and established stores where hurry and rush are quantities unknown and where the ease and comfort of the patron are made a matter of special study. In other words, they commercialized the leisure of the woman who has plenty of time on her hands and who wishes to render her shopping tours as pleasurable as possible.

Such a store is that of Stern Brothers, 28 to 46 West Twenty-third Street, well known for the atmosphere of quiet and superior dignity that prevails. It is mentioning the obvious to say that in every department the merchandise is rich and tasteful, while emphasis is placed on its artistic display. The clerks appear to have been well trained to carry out the suggestion of leisurely and careful selection.

One should not infer from this description that it is impossible to shop expeditiously in stores such as these. Quite the contrary is true. The very fact that there are no crowds and no hurry means that it is possible for each patron to receive immediate and undivided attention, which

naturally tends to facilitate matters.

Although Stern Brothers is one of the old established houses of Twenty-third Street, what might almost be called the larger part of the store is not yet a year old. Last August



Arrangements of Lights and Mirrors Give the Effect of Space and Distance

marked the opening of its so-called annex, which is twelve stories high with one hundred and fifty feet on Twenty-second Street and fifty feet on Twenty-third Street. The equipment, arrangement, and lighting of this new building are interesting. The sixth floor is entirely devoted to the main business offices, while the six floors above are given over to stockrooms and general work space.

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On the fifth floor are located the receiving department and telephone exchange. Rich rugs from the Orient adorn the columns of the fourth floor and there, also, are to be found tapestries and carpets. On the third

ment, in connection with which is a system of electric parcel conveyors.

This new section of the store is entirely lighted by 250-watt tungsten lamps within round white globes, suspended so that a uniform distance



For Smaller Wares, Lighting is Required that Shall Show the Details Properly

floor is a beautiful display of embroidery and similar handiwork. Here also are the rooms of the store's modiste, where a customer may bring the material she has purchased and have it made into a gown. The second floor has "white goods," including dainty wares for babies; while on the main floor are men's goods, stationery, leather, laces, perfumery, and a thousand and one other things. The basement houses the packing room and delivery depart-

ment, in connection with which is a system of electric parcel conveyors. There are sixteen electric elevators, each one being operated by a thirty-horsepower motor, while ten electric dumb-waiters are also employed according to Mr H H Morris, and half of the wagons are electric.

Operations have already been started for the construction of the new uptown home of the firm at 31 to 45 West Forty-second Street. The building will run through to West



Forty-third Street and there will also be a frontage of a hundred feet on Sixth Avenue.

THE Electrical Testing Laboratories of the Government Bureau of Standards at Wash-

Ordinarily one must choose between total darkness and dazzling brightness. The manufacturers of the new lamp recommended it especially for use in hospitals and in invalid rooms, although they maintain that it is generally useful and economical in the



In Departments of this Kind Correct Illumination is Highly Important in Bringing Out the Desired Effects

ington have made a report on a new type of an incandescent lamp known as the Dim-a-Lite. The report is based on tests of the amount of current consumed by the lamp at the various stages of brightness at which it is designed to burn. At the dim position, so the statement is made, there is a saving of 26.5 per cent, at low, a saving of 64.6 per cent, and at night light, of 73.1 per cent.

home. The device may be attached to any electric light fixture and is operated by pulling a cord.

The device has been tested by the Underwriters' Laboratories, and has been listed among the approved appliances in each local office of the National Board of Fire Underwriters. The resistance wires are prevented from corroding by being embedded in a solid fire-proof composition.



Mechanics and Metals National Bank, 33 Wall Street, Now on Edison Service



## Mechanics and Metals National Bank

AT the opening of the nineteenth century, on the site known as 16 Wall Street, stood the home and law office of Alexander Hamilton, just opposite the Sub-Treasury Building, on the steps of which Washington took his oath of office. The Hamilton mansion, together with the law office, stood far back on the lot, probably about half the distance through to the present Exchange Place. At the front was a handsome stretch of lawn, kept up in best English fashion, and on this, according to both history and tradition, was quartered a fine white cow.

Such was the bucolic spirit which in 1800 still hovered over what is now the heart of the financial district. Ten years later, neither the bright green lawn or the sleek white cow were to be seen, and on the site of 16 Wall Street was erected the first building of the Mechanics Bank. Since then, this bank, now known as the Mechanics and Metals National Bank, one of the six largest in the city, has had many a different roof-tree, but the old site has always been retained, the present structure having been erected in 1889.

In the early part of the nineteenth century, it was the custom for various trades to form banks to minister to their particular needs.

This was the period when the different enterprises were grouping themselves in local centers—thus, the jewelers in Maiden Lane, the bankers in Wall Street, the leather men in the "swamp" and so forth, forming divisions which in some instances persist to-day.

The establishment of banks by the different trades accounts for the names of many of these early institutions; the Hide & Leather, the Shoe & Leather, the famous Chemical Bank, the Butchers & Drovers, and so forth. At present some of these earlier names have been lost, especially when some combination of interests has been effected. Thus in 1906, the old Leather Manufacturers National Bank founded in 1836, was consolidated with the Mechanics National Bank; and in 1910, the National Copper Bank was merged with the Mechanics, which then became the Mechanics and Metals National Bank,



Part of Plant Abandoned by Mechanics and Metals National Bank

## The First Professional Chauffeuse

ON a day in January there appeared in the columns of a morning paper, a short "ad," in which a woman offered her services

remembered that this business is conducted exclusively by and for women. Mrs Alice E Waxham, of 2 West Ninety-fourth Street, who has driven



What is Considered a Sales Record of Pleasure Vehicles Was Made During the First Week of April, when the New York Agency of the Flanders Manufacturing Company Secured Six Contracts

to shopping and matinee parties, convalescents and others who desired the use of an electric coupe. The response was startling. People, many of whom owned their private cars and employed chauffeurs, wanted to use an automobile in which they could ride in comfort, and not at a hair-raising speed, on trips about the town. Engagements were booked days in advance and many were unable to secure accommodation.

It marked the beginning of a new profession for women, for it must be

cars since the earliest days of the automobile industry, is the pioneer in this enterprise, and it was her advertisement as a chauffeuse-chaperon that attracted so much attention.

Two cars of the Colonial Coupe type are used. Mrs Waxham drives one and a Wellesley College classmate drives the second. This unusual occupation first suggested itself to Mrs. Waxham because of her love for out-of-doors. "As soon as I felt that I had selected the occupation that would bring adequate returns and at





The Electric Limousine Has Gained Greatly in Popularity this Year. The Car Shown Here is a Hupp-Yeates

the same time keep me outdoors, I sold my gasoline car and bought a low-swung, comfortable electric, which I knew would be the ideal vehicle for the classes of women whom I hope to have for patrons.

"For carrying invalids and convalescents I required a car that was clean, silent and smooth-running, one with which there were no gases and vapors and which was free from the rattle of changing gears. Another important consideration was the control. For service in city streets, where congested traffic is often encountered, it was necessary to have a car that was always under immediate control. All of these requirements are found in the electric car."

To make sure that her car was absolutely non-skidding, even with plain tread tires, Mrs Waxham subjected it to the severest tests. She took it on the hilly roads in Central Park, when they were covered with snow and ice, but try as she might, she was unable

to make the wheels slide.

Mrs Waxham's skill was acquired in the West. She was one of the first women in Denver to drive her own car, and she often made long tours over the mountain roads. Not only does she drive well, but she knows the construction of a car as well as most mechanics.

This novel plan has received the endorsement of many physicians who recognize its value for their con-

valescent patients. Arrangements have been made by which the services of a trained nurse may be had when necessary. As her work increases, Mrs Waxham will add to the number of cars, eventually using a touring car for long trips into the country round about New York.

An electrically driven fire engine of the steamer type has recently been installed at Duesseldorf, Germany.



A Rauch and Lang Electric Seen in Central Park

## Freight Handling at Bush Terminal

FROM all parts of the world the steamers bring their cargoes of food stuffs, crude products, and raw materials, while all day long the creak of tackle and pulley is heard, an accompaniment to the gruff

place and the ports of every country on the globe. A city in itself, the Bush Terminal has its police department, its lunch rooms, a trolley line, miles of railroad track, locomotives, and freight cars; its warehouses and



Moving Bales of Cotton by Means of a Train of Trailers. Six Tons may be Moved on a Single Trip

orders of the boss stevedores, as the bales and boxes and barrels are swung upward from the hold and out to the dock. It is a scene of almost indescribable confusion, yet under it all there is a degree of order and system that soon clears up the chaos as the unloaded imports are sent to the warehouse or are loaded on freight cars for shipment into the country.

Such is the Bush Terminal on the water front of South Brooklyn, where one hundred and twenty-six warehouses are needed to store goods and seven piers are required for docking the steamers that ply between this

model loft buildings, and employs thousands of men in its vast activities.

One of its problems is the economical and expeditious hauling of freight over the short distances between piers and buildings. This is partly done by hand trucks, by horse-drawn flat cars, and by the recently installed battery truck cranes. These battery truck cranes, built by the General Electric Company, are designed especially for handling freight and materials in railroad or dockyards, or among the aisles of a foundry or manufacturing establishment. The trucks at the Bush Terminal were



among the first, having been in operation for about seven months. Briefly described, this apparatus is a flat car with a swinging crane, operated by a one-ton electric hoist at the forward end, while a storage battery supplies current both for driving the vehicle and the hoist. Not only is the crane capable of hoisting material and depositing it

work including spotting the cars.

When material has to be moved less than 400 feet, or, in small quantities, the article is lifted by the hook, conveyed to its destination by the vehicle, and placed wherever desired. By this pick-up-and-run method sixty 800-pound barrels of plumbage were moved 300 feet in one hour, one helper only being required, and one hundred



Another View of the Trailers

wherever desired, but it is constructed to serve as a locomotive and haul flat cars.

For simple hoisting, the machine is brought into position, the brakes are set, and the vehicle remains stationary as the boom of the crane moves back and forth between the picking up and depositing points. By this method 300 castings, aggregating 65,000 pounds, were unloaded from a gondola car in five hours; a box car was loaded with sixty-four 800-pound barrels of plumbage in twenty-five minutes, and four cars were loaded in two and one half hours, the latter

and fifty 300-pound boxes of rubber were conveyed seventy-five feet and loaded into a box car in fifty minutes. For shifting large quantities of freight over great distances, the truck is used as a locomotive, drawing a train of flat cars, on which the material is loaded. The train consists of from two to four trailers.

The following represents an average week's work at towing trailers in the Bush Terminal, deduced from the logs of a number of these machines operating over a long period:

Number of packages handled . . 7,570  
Average weight per package.. 230 lbs

Average distance  
packages were  
moved . . . 900 feet  
Total weight han-  
dled (900 tons)  
... 1,270,000 lbs  
Per cent of total  
time machine  
was working.. .80  
Packages deliv-  
ered per work-  
ing minute ... 3  
Number of differ-  
ent jobs worked  
on ..... 30  
Heaviest single  
load drawn...  
..... 12½ tons

Cost of operator, interest, depre-  
ciation, power.. . . . \$24.00  
Cost of moving one package 900  
feet. . . . . 1/3c

Cost of moving one ton (9 packages)  
900 feet. . . . . 3c



Three Hundred Iron Castings Aggregating 65,000 Pounds in Weight Were Unloaded from a Gondola Car in Five Hours



The Battery Truck Crane Leaving the Garage  
at the Bush Terminal

The Electric Vehicle Company, of Louisville, has been absorbed by the Kentucky Wagon Manufacturing Company. The wagon company, which for more than thirty years has been building farm wagons, will establish a motor truck department. At present the company is putting out a 1,000 pound wagon only, but as soon as the plans are drawn and the necessary machinery installed, one, two and three ton trucks will be built.

One of the first cars turned out was for the Kentucky Electric Company, of Louisville. In addition to its regular work, the wagon is equipped to meet any emergency.



### Raising a Forty-foot Lamp Post

**A**LTHOUGH in general use for display purposes, particularly for advertising amusement resorts, the flaming arc light has shown no tendency to depose the old type enclosed arc for street lighting in New

and South Ferry. In each of these places there is a wide, unobstructed area to be lighted, so rather than place a number of less powerful lights in several places, flaming arcs were installed. These are intensely brilliant, and, depending on their elevation above the street, light a wide area. Because of this the lamps are mounted



Hoisting a Forty-foot Lamp Post Into Position by Means of the Power Winch of a Five-ton Electric Truck. This Pole is at Twenty-third Street and Fifth Avenue and Supports Two Flaming Arc Lamps

York. In fact, among the thousands of arc lights to be seen on the thoroughfares, only eighteen are of the flaming type, and these were installed to meet certain and definite conditions.

Of these eighteen, two are at the Plaza, Fifty-eighth Street and Fifth Avenue, four are at Madison Square, four are at Long Acre Square, while two stand at both the Post Office

and South Ferry. In each of these places there is a wide, unobstructed area to be lighted, so rather than place a number of less powerful lights in several places, flaming arcs were installed. These are intensely brilliant, and, depending on their elevation above the street, light a wide area. Because of this the lamps are mounted

on forty-foot poles, double the height of the ordinary street fixture. They are of the white flame type, vertical feed, and are known as 480-watt lamps and are easily distinguished from the standard arc. Although there are but few of these lamps in New York, Chicago has made a large installation in the so-called Loop District.

### Drama Among the Tenements

**A**T Second Avenue and Second Street, surrounded by tenements, flanked on either side by elevated railroad lines, in fact in the heart of the swarming East Side

right end of the first row never elopes with a Western millionaire.

Yet Kessler's Theatre is packed at every performance, and recently on the presentation of a new play that had attracted no newspaper attention save that of the Yiddish critics, thou-



The Yiddish Theatres Advertise Largely by Means of Electric Lights

is New York's newest theatre, and although in size and appointments it ranks with any on the Great White Way, very few of this city's regular theatre-goers even know of its very existence.

No gaudily lithographed posters blazen the story of its thrills along the highways, no persistent press-agent floods the newspaper offices with stories of its attractions, the star never loses her case of invaluable jewels, and the chorus-lady at the

sands were turned away. The East Side lover of the stage, it is declared in a description of this institution by Irvin Cobb, supports his drama with far more loyalty than his brethren from the more prosperous parts of town; when he finds a play that is to his liking he will welcome its performance time after time, not only this season but next, and for years thereafter. And the quarter, or the dollar, that he pays for his seat means a greater proportionate sacrifice.

There are four theatres, in addition to the many moving picture shows and vaudeville houses, that cater to the million people who live on the East Side. They are Kessler's, which is the newest, and Adler's, on the Bowery, which is the oldest, the People's Theatre and Lipzin's Theatre. All the plays that are presented are written in or translated into Yiddish, and are presented in Yiddish to Yiddish audiences.

The history of the Yiddish drama in New York dates back not more than fifteen years, although for a number of years before that traveling players entertained small audiences of the people who were just beginning to colonize this section of the city. The plays were given in Yiddish or Russian, in small playhouses or public halls. Now, in this same East Side, that has produced so many of to-day's Broadway stars, there are just two theatres in which English is spoken, a burlesque and a vaudeville house.

These Yiddish theatres are open seven nights in the week while matinees are given on Saturdays and Sundays. Seldom is there a performance at which the house is not crowded. For each of the first four nights of the week, those generally conceded to be the poorest from a business standpoint, the house is sold outright to one of the many East Side benevolent societies, which in turn sells its tickets for what it can to its members. For the regular performances the best seats sell for a dollar while others can be had for as little as twenty-five cents.

Kessler's is the only one of the theatres that is modern in its appointments, and even that has a prompter's

box in the middle of the stage. The others still use the properties and the stagecraft that were in vogue fifteen years ago in these same playhouses.

Kessler's, however, in its appointments, ranks with the best on Broadway, and as in the Broadway houses, electricity is used exclusively for lighting effects and for power purposes. There are nearly three thousand lamps, ranging in size from the four-candle-power sign lamps over the entrance to the arc lights that illuminate the street leading to the building. All these lights are controlled from a switchboard on the stage, just as they are in any other well appointed theatre. For operating the elevator, the pumps, the scene-shifting machinery and the ventilating system there is an installation of motors aggregating about ninety horsepower. This current is all supplied from the mains of The New York Edison Company.

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## Foreign Notes

From the *Elektrotechnische Zeitschrift* comes the statement that the year 1911 was an especially important year in the electrical traction world, owing to the fact that railway authorities in Prussia, Berlin, and Bavaria adopted a line of pressure of 15,000 volts and a frequency of sixteen and two-thirds as a standard, using single-phase current.

A plant of six times the present output is to be installed in the Eiffel Tower. This will double the range of the military wireless station.



## "Going Up"



The Twenty-sixth Floor, Not Quite Half the Height of the Building. This Picture was Taken from the Top of Park Row Building, Which Only a Few Years Ago was New York's Tallest Structure. The Flag in the Lower Corner Waves Over the Post Office

ELECTRICITY is erecting the great fifty-five story Woolworth Building. By its agency no less than 130,000 tons of steel, brick and stone are being lifted, some of it to the full height of 750 feet above the sidewalk. Indeed, one of the down-town sights, which draws





One of the Electric Hoists, Twenty-six Floors Above the Street

a continuous though changing audience to the corner of Park Place and Broadway, is a bundle of heavy steel girders and beams dangling at the end of a derrick boom a few hundred feet in the air.

Six, eight and ten horse trucks are required to haul the giant girders from the docks to the building; there they are fastened to a slender cable and hoisted to their position at the top of the structure. In the skeleton of this great building will be 21,000 tons of steel, while to cover it will be required 50,000 tons of brick, seven and one-half thousand tons of which are the glazed finish

terra-cotta for the exterior.

To hoist the steel and set it in place, are six derricks driven by eighty-horse-power motors. Four of these followed the course of construction to the twenty-sixth floor, the limit of the building proper, after which two proceeded with the tower

work as far as the fortieth floor, from which one of the derricks kept pace with the work. The hoisting engines and motors are seldom moved. They remain several floors below the working level, the cables of course running through the structure from the drums to the block and tackle on the lifting



An Idea of the Size of the Mast and Boom and the Weight of the Block Required to Hoist the Steel Girders May be Had from this Picture



The Cuyler Building, 116 West 31st Street, Designed by William H Gompert, is Said to Meet Every Requirement of the Proposed New Building Code. Edison Service will Supply 550 Horse-power in Motors Used by the Tenants

apparatus itself. A telephone system supplemented by pull-bell signals is employed by the operators in directing the work, for the motor-man of the derrick acts entirely on signal, just as the engineer of an ocean liner drives his ship entirely by the bells from the bridge. Only in the erection of a modern skyscraper the bridge is seldom more than a plank extending over the edge of the floor while the look-out, instead of being in the crow's-nest at the masthead, rides through space on the see-sawing girder. The work of the hoist is by no means completed with the safe delivery of the steel at the top floor; it must all be fitted together and so skilled have the workers become and so expert are they with their signals, that the beams are guided into place with little friction and loss of energy.

Although steel hoisting is thrilling, and to a certain degree picturesque, as it is watched daily by thousands from the City Hall Park and the Post Office, it is far from being the heaviest part of the work. Seventeen million brick weighing 42,500 tons and seven thousand five hundred tons of terracotta are also used, but they are carried to the bricklayers in prosaic wheelbarrows, and on every day hoists. There are ten of these, and besides the bricks, concrete, cement and other materials are lifted on them. Six of the hoists are operated by forty horsepower motors and four by fifty horsepower motors.

Cement and concrete are mixed in the basement, the machines, four in number, being operated by fifteen horsepower motors. From the mixers the cement is loaded in steel wheel

barrows, rolled to the nearest hoist and sent to the working floor. There is no time lost in loading and unloading a hoist, for as it drops to the basement with a load of "empties" a spring device up-ends one side of the floor and dumps the barrows off, while the loaded ones are immediately rolled on and laborers hustle the "empties" back to the cement pile for another supply. Although the cement is mixed in the basement it is not made the exact consistency for holding brick together. This finishing is done on the working floor, just as the stuff is about to be used. Therefore a plumbing system is necessary, and temporary pipes lead to hydrants, scattered in all parts of the structure, two fifteen horsepower motors keeping the water in circulation. Another motor of fifty horsepower pumps rainwater and leakage out of the basement.

There are two compressor plants on the work; one for the steam riveters and drills and the other for shooting cement. Seventy-five horsepower are required for the riveters and all day long their gattling-gun fusillade is heard. The Thompson-Starrett Company is handling this construction problem and the electrical installation used by the firm amounts to about twelve hundred horsepower in motors, two hundred arc lights and about two thousand incandescent lamps. A force of six electricians is kept constantly busy looking after the wiring, for changes have to be made daily as the work advances. The current is supplied by The New York Edison Company. The building will be the tallest in the world, rising to a height of 750 feet in fifty-five stories.

## Duplicating by Ribbon

**D**URING the last twenty-five years most remarkable progress has been made in office methods and equipment. A large portion of the work formerly done by hand is now being accomplished by machines which seem almost to possess the power of thought. Along with others, such as the typewriter, the adding and calculating devices, and the accounting and filing systems, there is the duplicator.

The first duplicating device for office use was put on the market in 1887. That was the Edison mimeograph, and as the name implies, was a machine for making many copies from an original writing. It was the product of the A B Dick Company, now one of the largest manufacturers of duplicating machines. It so happened that several years before the appearance of the Edison mimeograph, Mr A B Dick, who was at that time extensively engaged in the lumber business, devised a wax sheet process for use in his own office.

The inventor then became convinced of the unlimited commercial possibilities of this device. From the Patent Office, however, he learned that Edison had previously taken out a patent on a wax sheet duplicating device which gave him rights covering Mr Dick's invention. Thereupon Mr Dick purchased Edison's patent, thus obtaining the right to manufacture the duplicator, using Edison's name.

The result was the first Edison mimeograph, which appeared in the

Spring of 1887. Although a primitive affair, it proved the convenience of such an article, and with improvements the mimeograph found a ready market. After the wax sheet machine came the automatic type, then the oscillating, and from that sprung the rotary, which is the latest model of this device. The mimeograph process requires ink which, if carelessly handled, is an objectionable feature. To obviate this and to supply an inkless duplicating machine, the planotype, which prints through a typewriter ribbon, was evolved.

It represents a close study of the requirements for a flat-bed, type-printing duplicator. At a speed of from 1,500 to 2,000 copies an hour, it reproduces letters, forms, blanks, cuts, and impressions from stereotypes and electroplates, in fact everything but half-tones. All proofs of cartoons sent out by the *New York Herald* for syndicate use, are made by the planotype. Any style of type manufactured can be used, including the different kinds for the various makes of typewriters.

The average business man knows that to set type, make up forms and lock them in a printing chase, requires trained skill not possessed by the ordinary office assistant. In the planotype system, however, the whole process is reduced to such simple terms that a novice can make fair speed with a little instruction and a few hours' practice. The type is set with a guide, as in a groove. Being in multiples, or of the same width, they



fill out exactly each line in the chase, requiring no locking, and thus dispensing with tightening devices and locks in the form.

An interesting and important feature is the way in which the platen, or roller, passes over and presses down on the type. At all times, except when rolling onto and from the type, it is resting on several lines, thus insuring an evenness of impression. Pressure equalizers insure an even pressure on short lines, as well as at the beginning and end of the form.

A lever controls the pressure of the printing roller, so that the operator can regulate the color and density of the copy. The printing roller passing over the type is followed by a device that picks up the printed sheet and conveys it to the end of the machine, there piling it in a metal receptacle, and automatically recording the number of copies printed. The little electric motor which operates the planotype is dust-proof and covered to prevent any contact with its moving parts.

An excellent example of the use to which the planotype may be put is found in The New York Edison Company, where a directory of the employees in certain departments is maintained, containing about 3,000 names

Each is accompanied by the address, telephone number, department, branch, and occupation. This is revised every month, so that new names, changes of address, etc., may be recorded. Formerly this work was done by a printer, a revision requiring two weeks. In addition to the troublesome length



Getting Out a Revision of The New York Edison Company's Directory on the Planotype

of time the cost was excessive.

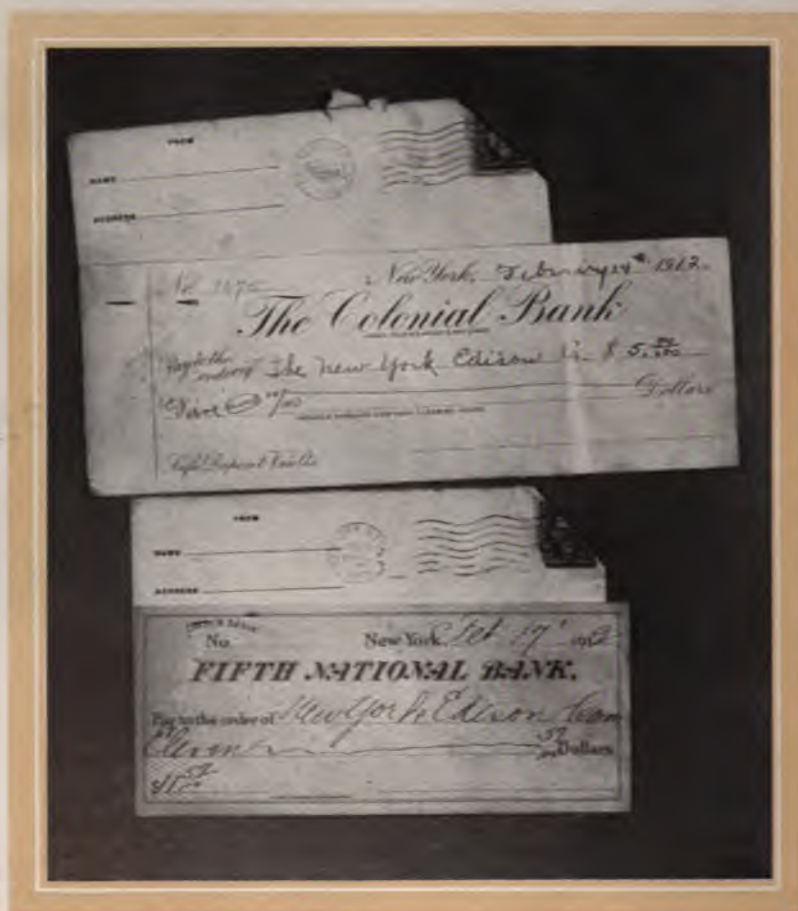
Several months ago a change was instituted. A planotype was procured and several typists were instructed in operating it. The next revision of the directory was gotten out in less than two weeks, while since then the time has been cut down to one week. Besides cutting down the time, a very considerable financial saving was effected. A hundred chases, each representing a page of the directory, are kept in a cabinet with the type always locked in them.

## The Edison Monthly

### Unsigned Checks

AMONG the thousands of checks received in the Company's mail there are daily from 150 to 200 unaccompanied by

shown here were enclosed in the Company's envelopes, provided with a space for name and address in the upper left-hand corner, which the sender has neglected to fill in, while the checks themselves offer no means



Two of Many Similar Checks Received by the Cashier's Department

either bills or statements; and it frequently happens that in their haste, customers also omit signatures from their checks, thus making it impossible to identify the senders.

It will be noticed that the checks

of identification. In order that customers may not be annoyed by delayed acknowledgment of their remittances, the suggestion is made that more care be given these important matters of detail.

### A Patent Connector

A LITTLE device that will undoubtedly prove extremely useful to electrical contractors has recently been completed and is now upon the market. It is called the "no-splice" and is designed to do away with the necessity of soldering and taping of wires, and can be adapted for motor or sign leads, as well as to connect fixtures with outlets. In the present practice in house-wiring, when wires must be joined, there is no recourse but solder, a torch providing the necessary heat to fuse the metal. The disadvantages of this procedure are fairly obvious. There is always a fire-risk where an open flame is used, and especially is this of importance in connection with such inflammable objects as paint, wood-work and wall paper.

Aside from the fire-risk involved, the old job of soldering was extremely unhandy. Wires having been connected from the outlets to the fixtures, the torch must be lit and the workman, mounting a ladder, solders first one joint then another, the steps being moved from place to place as occasion requires. Next, the soldered joint having cooled, it must be covered with



This New Connecting Device is Particularly Useful in House-wiring

insulating tape, requiring another trip with the ladder.

With new patent joint, both ends of the wires to be joined are "stripped," placed in the ends of the hard rubber "no-splice," and fastened in position by tightening the screws. The two divisions of the connector are then put together and closed by turning a brass banding. The new connector has been endorsed by the New York Board of Fire Underwriters and the New York City Department of Water Supply, Gas and Electricity.



The Two Hard-rubber Sections are Joined by a Metal Band



## About Rope Making

NO one knows how many thousand years ago it was that rope first came into use, perhaps the earliest record being of its gruesome employment as the hangman's noose, but however that



Edison Sign on the Wall Rope Works, 48 South Street. A Familiar Sight from the Brooklyn Bridge

may be, there is probably no article so generally used to-day. Likewise there is perhaps none concerning the manufacture of which so little is known by the great number of users.

It was an electric sign which really

suggested this. Its big bright letters, "Wall Rope," shining out over the docks and wharves of South Street and the East River just south of the Wall Street Ferry, tempted the writer to visit the establishment they advertise. The sign is on the New York headquarters of the Wall Rope Works, 48 South Street. The firm has been making rope since 1830 and in their factories at Beverly, N J, were made the hawsers which were used in towing the U S Floating Dry Dock "Dewey," the largest floating dry dock in the world, from Baltimore to the Philippines.

The best raw material for rope making is the so-called Manila hemp. Strictly speaking, this is not a hemp at all, being a fiber obtained from the wild banana plant of the Philippine Islands. The botanists call this plant *Musa Textilis* but the Filipino, who ought to know, calls both the plant and its fiber "Abaca."

It so happens that the Philippines have a monopoly of this very important plant, since it has never been successfully cultivated elsewhere. So it will be seen that the user of Manila hemp is dependent entirely upon our recently acquired possessions in the eastern world for his supply. In some manner it has penetrated the aboriginal darkness of the mind of the "little brown man" that he has a monopoly and so, being unfamiliar with the ethics of co-operation, he is not inclined to be very susceptible to the wishes of his customers, and therefore, procuring of hemp produced and prepared in the way to make it most valuable for rope making is attended with some difficulty.

The abaca is cultivated by setting



out shoots of the plant after a suitable tract of land has been cleared. When the field has had proper cultivation for a period of two or three years some of the plants will be ready to cut. They are then in tree-like shape, and from fifteen to twenty-five feet in height. The stalk is composed of the separate leaf stems growing compactly in overlapping layers.

The fiber is contained in the outer bark of these leaf stems, their inner portions being of a soft, pulpy nature. After the stalk is cut the native peels off strips of this fibrous bark, and after stripping the outer layer of stems, scrapes off

its remaining pulp and proceeds to strip the next inner layer. This process is kept up through all the successive layers, the fiber from the inner layers of stems being finer and whiter than that from the outside.

The strips are then cleaned by drawing them under a knife hinged over a block of wood, to free the fibers from the surrounding pulp, and the quality of the hemp depends very much upon the thoroughness with which this scraping is done. By using a smooth-edged knife and put-

ting considerable pressure upon it during the operation, a fiber is secured of high strength and good color. Strange to say our brown fellow-citizen, however, is apt to spare his back by using a dull knife loosely held against the material, thus turning out a larger product of inferior quality, so that a fortune probably awaits anyone who will perfect machinery



**Making Walk Laid Rope in the Wall Rope Works, Beverly, N. J. This Rope Walk is Three Thousand Feet Long, the Longest in the World.**

capable of superseding these antiquated hand methods.

When scraped, the fiber is hung over bamboo poles to dry. In the warehouse of the exporter the fiber is sorted and graded, and then packed in bales of 275 pounds, in which form it eventually reaches the cordage factory. There it is combed and spun into yarn, the yarn being woven into strands and the strands into rope. The best is "walklaid," producing equal tension on all strands, impossible to obtain by machine.

## Women's Industrial Exhibition

THE Women's Industrial Exhibit held in the New Grand Central Palace from March 14th to 24th might otherwise have been called an essay on the position and occupation of woman at the opening of the twentieth century. In its

between the first two. The labor of the handicapped, such as the weaving done by the blind and the embroidery of the crippled children, emphasized this element of philanthropic endeavor while art and handicrafts suggested other phases of serious undertaking.



Electrical Appliances for Home Use, Shown at the Women's Industrial Exhibition. At the Right, Cooking was done on Several Types of Electric Ranges and Stoves. Towards the Centre, a Washing Machine is Seen, while the Further End of the Booth Represented a Living-Room

many displays, representing philanthropy, education, industry, art, business, politics, culture, and near-culture, a striking picture of our own life and times was presented. Here were to be seen the finest needlework for the very wealthy, and frequently too, prepared at the hands of the very poor, while some third exhibit, such as the Consumer's League, showed the efforts of still another group of women to bring about a proper relation

The entire matter of the mechanics of housekeeping, however, which is, after all, one of woman's chief industries, was left entirely to the two largest lighting companies in New York. While the gas exhibit concerned only its application for cooking, the electric equipment touched every branch of domestic science. Laundry work was represented by a new machine and different types of irons; cleaning was embodied not only in

vacuum machines, but in the types of lighting and cooking which prevent the accumulation of dirt, while the kitchen and dining-room were furnished with suitable appliances.

Possibly the appliances drawing the most attention were the new types of electric cooking devices, known to the trade as "combination sets." At the Industrial Exhibition could be seen not only the old "combination stove," but a series of newer devices. For instance, the coffee percolator is now so arranged that the percolation apparatus may be removed, leaving a kettle, in which water may be heated for tea. The nursery milk-warmer, too, has been rendered doubly useful; the interior bottle may be taken out and the flask becomes an ordinary water-heating cup.

Other sets give the electric disc stove in various combinations for boiling, frying, toasting and broiling, in fact for everything except baking. The chafing dish, too, has not been neglected. A new form has now been devised with the heating unit in the base of the first dish, instead of having the pan rest upon a disc stove. Frying or boiling may be done directly in this dish, or it may be filled with water in orthodox chafing-dish fashion, and the cooking conducted in the upper basins.

As a result of this arrangement, the person already possessing a fine chafing dish of the alcohol lamp type may easily have it converted into an electric one, by purchasing simply the first dish containing the heating unit.

Aside from the smaller cooking utensils, many larger ones were displayed, including the new "grid"

made by the General Electric Company, the Simplex range and the new Copeman cooker. One afternoon a complete luncheon, of which the main course was chops with mushrooms and potatoes, was prepared in thirty-five minutes on the new "grid," only 350 watts being consumed. Figured on a ten cent per kilowatt hour basis, this would cost less than three cents for current.

The Copeman cooker might be thought of as a combination of the fireless cooker and the electric range. There are two large ovens, lined and packed like those of a fireless cooker. With this arrangement, the food is brought to the right temperature on some other stove, and then placed within the cooker. On the Copeman stove, however, each oven contains a removable heater which serves to bring the viands to the proper boiling or baking point. Current is then shut off, and the fireless cooker principle does the rest, thus reducing greatly the amount of current necessary.

However, when quicker results are wanted, or if frying is to be done, the removable heaters may be taken out of the ovens and fastened to connections on the top of the cooker, permitting entirely separate operations to be carried on there. For the woman doing her own work, this cooker presents still further advantages. The oven may be set for automatic disconnection by means of a clock-work attachment. Supposing that a roast were in the oven which would require an hour's baking. The housewife would then set the clock and go about her other work knowing that at the proper time, the heat would be cut off automatically.

# The New York Edison Company

## GENERAL OFFICES

55 Duane Street

Telephone Worth 3000

BRANCH OFFICES	TELEPHONE
424 Broadway	: : Spring 9890
126 Delancey St	: : Orchard 1960
124 West 42d St	: : Bryant 5262
839 Third Avenue	: : Plaza 6543
27 East 125th St	: : Harlem 4020
360 East 149th St	: : Melrose 3340

EMERGENCY NIGHT AND  
SUNDAY CALL—BRYANT 145

### *Territory Served by the Various Supply Offices*

FIRST DISTRICT, 424 BROADWAY  
All territory South of Eighth Street West  
of the Bowery  
TELEPHONE No SPRING 9890

DELANCEY STREET  
DISTRICT, 546 PEARL STREET  
All territory South of Eighth Street East  
of the Bowery  
TELEPHONE No WORTH 3000

SECOND DISTRICT  
115 WEST 39th STREET  
Eighth Street to Fifty-ninth Street, both  
inclusive, from the East to the North River  
TELEPHONE No BRYANT 145

THIRD DISTRICT  
173 WEST 107th STREET  
North of Fifty-ninth Street from East to  
North River to and including One Hun-  
dred and Thirty-sixth Street, east of St  
Nicholas Avenue, and to the south side  
of One Hundred and Thirty-fifth Street  
west of St Nicholas Avenue  
TELEPHONE No RIVERSIDE 4889

BRONX DISTRICT  
140th STREET AND RIDER AVE  
All territory lying within the Borough of  
the Bronx  
TELEPHONE No MELROSE 3330



*"At Your Service"*





# THE EDISON MONTHLY



AUGUST  
1911

THE NEW YORK EDISON COMPANY  
FIFTY-FIVE DUANE STREET - NEW YORK

# The New York Edison Company

## GENERAL OFFICES

55 Duane Street

Telephone Worth 3000

BRANCH OFFICES	TELEPHONE
424 Broadway	: : Spring 9890
126 Delancey St	: : Orchard 1960
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27 East 125th St	: : Harlem 4020
360 East 149th St	: : Melrose 3340

EMERGENCY NIGHT AND  
SUNDAY CALL—BRYANT 145

### *Territory Served by the Various Supply Offices*

FIRST DISTRICT, 424 BROADWAY  
All territory South of Eighth Street West  
of the Bowery  
TELEPHONE NO SPRING 9890

DELANEY STREET  
DISTRICT, 126 DELANEY STREET  
All territory South of Eighth Street East  
of the Bowery  
TELEPHONE NO WORTH 3000

SECOND DISTRICT  
124 WEST 42d STREET  
All territory South of Eleventh Street East  
of the Bowery  
TELEPHONE NO BRYANT 5262

THIRD DISTRICT  
839 THIRD AVENUE  
All territory South of Eleventh Street East  
of the Bowery  
TELEPHONE NO PLAZA 6543

FOURTH DISTRICT  
27 EAST 125th STREET  
All territory South of Eleventh Street East  
of the Bowery  
TELEPHONE NO HARLEM 4020

FIFTH DISTRICT  
360 EAST 149th STREET  
All territory South of Eleventh Street East  
of the Bowery  
TELEPHONE NO MELROSE 3340

*At Your Service*

# THE EDISON MONTHLY



S E P T E M B E R

1 9 1 1

THE NEW YORK EDISON COMPANY  
FIFTY-FIVE DUANE STREET - NEW YORK

# The New York Edison Company

## GENERAL OFFICES 55 Duane Street

Telephone Worth 3000

BRANCH OFFICES	TELEPHONE
424 Broadway : :	Spring 9890
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EMERGENCY NIGHT AND  
SUNDAY CALL—BRYANT 145

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TELEPHONE No RIVERSIDE 4889

BRONX DISTRICT  
145th STREET AND RIDER AVE  
All territory lying within the Borough of  
the Bronx  
TELEPHONE No MELROSE 3330



*"At Your Service"*





8  
OCT 16 1911

# THE EDISON MONTHLY



OCTOBER  
1911

THE NEW YORK EDISON COMPANY  
FIFTY-FIVE DUANE STREET - NEW YORK

# The New York Edison Company

## GENERAL OFFICES 55 Duane Street

*Telephone Worth 3000*

BRANCH OFFICES	TELEPHONE
424 Broadway : :	Spring 9890
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EMERGENCY NIGHT AND  
SUNDAY CALL—BRYANT 145

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BRONX DISTRICT  
140th STREET AND RIDER AVE  
All territory lying within the Borough of  
the Bronx  
TELEPHONE No MELROSE 3330



*"At Your Service"*



8  
OCT 27 1911

# THE EDISON MONTHLY



NOVEMBER

1911

THE NEW YORK EDISON COMPANY  
FIFTY-FIVE DUANE STREET - NEW YORK

# The New York Edison Company

## GENERAL OFFICES

55 Duane Street

Telephone Worth 3000

### BRANCH OFFICES TELEPHONE

424 Broadway	:	:	Spring 9890
126 Delancey St	:	:	Orchard 1960
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EMERGENCY NIGHT AND  
SUNDAY CALL—BRYANT 145

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BRONX DISTRICT  
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*"At Your Service"*





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# THE EDISON MONTHLY



DECEMBER

1911

THE NEW YORK EDISON COMPANY  
FIFTY-FIVE DUANE STREET - NEW YORK

# The New York Edison Company

## GENERAL OFFICES

55 Duane Street

Telephone Worth 3000

BRANCH OFFICES	TELEPHONE
424 Broadway : :	Spring 9890
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EMERGENCY NIGHT AND  
SUNDAY CALL—BRYANT 145

### *Territory Served by the Various Supply Offices*

FIRST DISTRICT, 424 BROADWAY  
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DELANCEY STREET  
DISTRICT, 540 PEARL STREET  
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BRONX DISTRICT  
145th STREET AND RIDER AVE  
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*"At Your Service"*



# THE EDISON MONTHLY



JANUARY

1912

THE NEW YORK EDISON COMPANY  
FIFTY-FIVE DUANE STREET - NEW YORK

# The New York Edison Company

## GENERAL OFFICES

**55 Duane Street**

*Telephone Worth 3000*

### BRANCH OFFICES TELEPHONE

424 Broadway	:	:	Spring 9890
126 Delancey St	:	:	Orchard 1960
245 West 42d St	:	:	Bryant 5262
839 Third Avenue	:	:	Plaza 6543
27 East 125th St	:	:	Harlem 4020
360 East 149th St	:	:	Melrose 3340

**EMERGENCY NIGHT AND  
SUNDAY CALL—BRYANT 145**

### *Territory Served by the Various Supply Offices*

**FIRST DISTRICT, 424 BROADWAY**  
All territory South of Eighth Street West  
of the Bowery

TELEPHONE No SPRING 9890

**DELANCEY STREET  
DISTRICT, 546 PEARL STREET**  
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TELEPHONE No WORTH 3000

**SECOND DISTRICT  
115 WEST 39th STREET**  
Eighth Street to Fifty-ninth Street, both  
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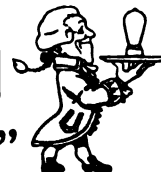
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**THIRD DISTRICT  
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**BRONX DISTRICT  
140th STREET AND RIDER AVE**  
All territory lying within the Borough of  
the Bronx

TELEPHONE No MELROSE 3330



***"At Your Service"***



FEB 17 1912

# THE EDISON MONTHLY



FEBRUARY  
1912

THE NEW YORK EDISON COMPANY  
FIFTY-FIVE DUANE STREET - NEW YORK

# The New York Edison Company

## GENERAL OFFICES

**55 Duane Street**

*Telephone Worth 3000*

### BRANCH OFFICES TELEPHONE

424 Broadway	:	:	Spring 9890
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**EMERGENCY NIGHT AND  
SUNDAY CALL—BRYANT 145**

### *Territory Served by the Various Supply Offices*

**FIRST DISTRICT, 424 BROADWAY**  
All territory South of Eighth Street West  
of the Bowery

**TELEPHONE No SPRING 9890**

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DISTRICT, 546 PEARL STREET**  
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140th STREET AND RIDER AVE**  
All territory lying within the Borough of  
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**"At Your Service"**



THE EDISON  
MONTHLY



MARCH  
1912

THE NEW YORK EDISON COMPANY  
FIFTY-FIVE DUANE STREET - NEW YORK

# The New York Edison Company

GENERAL OFFICES  
55 Duane Street

Telephone Worth 3000

BRANCH OFFICES	TELEPHONE
424 Broadway	: : Spring 9890
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839 Third Avenue	: : Plaza 6543
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EMERGENCY NIGHT AND  
SUNDAY CALL—BRYANT 145

## *Territory Served by the Various Supply Offices*

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BRONX DISTRICT  
140th STREET AND RIDER AVE  
All territory lying within the Borough of  
the Bronx

TELEPHONE No MELROSE 3330



*"At Your  
Service"*





1912

# THE EDISON MONTHLY



APRIL  
1912

THE NEW YORK EDISON COMPANY  
FIFTY-FIVE DUANE STREET - NEW YORK

# The New York Edison Company

GENERAL OFFICES  
55 Duane Street

Telephone Worth 3000

## BRANCH OFFICES

BRANCH OFFICES	TELEPHONE
424 Broadway : :	Spring 9890
126 Delancey St : :	Orchard 1960
245 West 42d St : :	Bryant 5262
839 Third Avenue : :	Plaza 6543
27 East 125th St : :	Harlem 4020
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EMERGENCY NIGHT AND  
SUNDAY CALL—BRYANT 145

## *Territory Served by the Various Supply Offices*

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BRONX DISTRICT  
140th STREET AND RIDER AVE  
All territory lying within the Borough of  
the Bronx

TELEPHONE No MELROSE 3330



*"At Your  
Service"*



# THE EDWARDS MONUMENT



# The New York Edison Company

GENERAL OFFICES

55 Duane Street

Telephone Worth 5000

TELEPHONE	TELEPHONE
424 Broadway	Spring 9890
126 Delancey St.	Orlando 1100
245 West 42d St.	Brooklyn 5200
884 Third Avenue	Plaza 9425
27 East 14th St.	Harlem 4120
30 East 14th St.	Meat 3340

EMERGENCY NIGHT AND SUNDAY CALL—BRYANT 145

*Territory Served by the Various Supply Offices*

FIRST DISTRICT, 126 BROADWAY  
 ADDRESS: 126 BROADWAY, NEW YORK  
 TELEPHONE: N. SPRING 9890

DELANEY STREET  
 ADDRESS: 126 BROADWAY, NEW YORK  
 TELEPHONE: N. SPRING 9890

SECOND DISTRICT, 126 BROADWAY  
 ADDRESS: 126 BROADWAY, NEW YORK  
 TELEPHONE: N. SPRING 9890

THIRD DISTRICT, 126 BROADWAY  
 ADDRESS: 126 BROADWAY, NEW YORK  
 TELEPHONE: N. SPRING 9890

FOURTH DISTRICT, 126 BROADWAY  
 ADDRESS: 126 BROADWAY, NEW YORK  
 TELEPHONE: N. SPRING 9890

*"At Your Service"*



APR 30 1912

# THE EDISON MONTHLY



MAY  
1912

THE NEW YORK EDISON COMPANY  
FIFTY-FIVE DUANE STREET - NEW YORK

# The New York Edison Company

GENERAL OFFICES  
55 Duane Street

Telephone Worth 3000

## BRANCH OFFICES TELEPHONE

424 Broadway	: : Spring 9890
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EMERGENCY NIGHT AND  
SUNDAY CALL—BRYANT 145

## *Territory Served by the Various Supply Offices*

FIRST DISTRICT, 424 BROADWAY  
All territory South of Eighth Street West  
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BRONX DISTRICT  
140th STREET AND RIDER AVE  
All territory lying within the Borough of  
the Bronx

TELEPHONE No MELROSE 3330



## WIRING AND INSTALLATION CONTRACTORS

### West of Broadway and Fifth Avenue

Amsterdam Ave 648—H Baumstetter  
Amsterdam Ave 650—J. I. Moriarty & Co  
Broadway 335—Park Sullinger  
Broadway 350—J. S. Bunn  
Broadway 853—J. H. Menkes Electric Co  
Broadway 1170—The Chas. I. Enditz Co  
Broadway 1207—S. W. Electric Co  
Broadway 2122—C. E. MacCabe  
Broadway 2270—A. Ostrom Rowe  
Broadway 2382—H. S. Beckelman  
Broadway 2742—H. Reinwald Jr  
Canrich St 30—L. K. Comstock & Co  
Columbus Ave 220—T. F. Carr  
Columbus Ave 340—Hoffman & Lins  
Columbus Ave 640—L. C. Aske  
Corlandt St 20—Cleveland & Ryan  
Corlandt St 30—Berg & Co  
Corlandt St 30—Bakker & Bakker  
Corlandt St 32—Electric Tools & Supply Co  
Corlandt St 84—Reyle Electric  
Fifth Ave 172—Jas. T. Hagges  
Fifth Ave 214—E. H. B. Co  
Fifth Ave 295—L. A. Whitney Inc  
Fifth Ave 75—H. M. Walters  
Fifth Ave 323—Flicker & Knowlton  
Greenwich St 181—Thomas & Jones  
Greenwich St 227—F. A. Fry  
Greenwich St 255—L. C. Ross  
Hudson St 600—Edw. S. Harris  
Lexington Ave 723—E. H. W. Latzer  
Sixth Ave 110—F. V. Jones  
Sixth Ave 410—C. A. Luskman  
Sixth Ave 617—Zanker & Sons  
Sixth Ave 632—John J. Dunn  
Sixth Ave 780—C. C. Bush Electric Co  
Sixth Ave 943—John M. Hart  
Seventh Ave 107—Emil Christensen  
Seventh Ave 300—Louis Fremont  
Seventh Ave 422—Franklin Electric  
Seventh Ave 727—Conduit Wiring Co  
Seventh Ave 2209—Nathan Zinsky  
Thames St 27—Watson Flagging Co  
Thames St 27—McLeod Ward & Co  
Varick St 132—Eugene P. Etzel  
Warren St 73—L. P. Hall  
Warren St 90—Wm. F. Daulty  
West Broadway 100—Philips Mtg Co  
West Broadway 378—M & S Electric Co  
West St 110—Knickerbocker Electric Co  
West St 403—Western Elec Co  
West 14th St 135—The Electrical Contracting Co  
West 17th St 150—Harry A. Hunt  
West 20th St 218—Halpern Bros  
West 21st St 35—W. J. McClure & Co  
West 28th St 41—E. H. S. Dillon  
West 37th St 110—Tucker Elec. Equip Co  
West 38th St 150—Landous Elec. Equip Co  
West 39th St 25—Harry Alexander

West 33d St. 221—E. J. Elec. Installation Co.  
West 34th St. 48—Fest & Powers  
West 38th St. 3041—Dennis G. Brussel  
West 38th St. 72—A. J. Bushman Co.  
West 42d St. 25—Russell Haynes Electrical Co.  
West 42d St. 203—Germond & Turner  
West 42d St. 112—Oberg, Baumberg & Bleyer  
West 45th St. 100—J. A. Bohning  
West 46th St. 422—Frank Pien  
West 52d St. 170—T. J. Kaufman & Co.  
West 84d St. 121—A. Christensen  
West 90th St. 140—John A. Margato Co.  
West 117th St. 147—Marquo & Electric Co.  
West 119th St. 205—Lewis S. Pien  
West 125th St. 11—M. Heller Electric Co.  
West 134th St. 314—M. H. Rosen  
West 147th St. 208—The Manhattan Electrical  
Manufacturing Co.  
West 152d St. 100—J. W. Hoag & Mfg. Co.

### East of Broadway and Fifth Avenue

Ave. A 22—H. A. Schaeffer  
 Broadway St. 74—J. C. & W. C. De  
 Broadway St. 114—H. W. Wright  
 Canal St. 22—S. C. & W. C. A  
 Canal St. 14—W. C. DeWitt &  
 Canal St. 8—F. C. H. & Co.  
 East 1st St. 12—R. W. Schaeffer &  
 East 1st St. 20—Thompson & DeWitt  
 East 1st St. 22—Linton & Morgan  
 East 1st St. 24—Thompson & DeWitt  
 East 2d St. 12—F. C. H. & Co.  
 East 2d St. 42—Kendall & Co. & Co.  
 East 2d St. 142—Baltimore & Morgan  
 East 2d St. 152—L. C. & Co.  
 East 2d St. 114—L. C. & Co.  
 East 3d St. 12—Geo. H. Schaeffer  
 East 3d St. 212—Joseph W. Wright  
 East 3d St. 222—J. C. & W. C. A  
 East 4th St. 36—L. W. & Co. Co.  
 East 4th St. 42—L. DeYoung  
 East 5th St. 142—Baltimore & Co.  
 East 5th St. 42—Mellott & Co.  
 East 6th St. 42—Stanley & R. &  
 East 7th St. 102—L. F. Dushman  
 East 7th St. 42—Edw. Zenker  
 East 8th St. 126—M. Stromp  
 East 12th St. 14—L. F. Strauss  
 East 12th St. 36—Leo S. Stern  
 East 12th St. 72—Peter Jansen  
 Fourth Ave. 238—W. H. Corbit  
 Fourth Ave. 324—Hazel & Buchler  
 Frankfort St. 2645—L. F. Edstrup & Co.  
 Fulton St. 44—F. Klen & Bro.  
 Fulton St. 6248—Fulton Electric Co.  
 Fulton St. 222—Edward B. St. & Co.  
 Fulton St. 222—General Electric Inspection Co.  
 Gold St. 26—Mits. & Inventors' Elec. Co.  
 Great Jones St. 48—Geo. Weber & Bro.  
 John St. 84—Alfred Whitley

## WIRING AND INSTALLATION CONTRACTORS (Continued)

Lexington Ave 1249—J E Woelfe  
 Liberty St 123—G Curt Kastner  
 Liberty St 126—S Arthur Brown  
 Madison Ave 314—Nimis & Nimis  
 Madison Ave 959—Kendelhardt & Morris  
 Madison Ave 1122—F W Cohn  
 Park Ave 103—Stehlin-Miller-Henes Co  
 Park Ave 1630—Guarantee Electric Co  
 Pearl St 119—Kelting Elec Co  
 Third Ave 221—Maurice Young  
 Third Ave 670—Silverman Bros  
 Third Ave 1021—E Kalkan  
 Walker St 84—M F Finkelstein  
 Wall St 2—Edwin C Gee  
 Wall St 99—Chas Davidson

### Bronx

Baker & Fox—313 E 141st St  
 Blackman & Guttman—226-28 East 144th St  
 Bogan Irving A—4192 Park Ave  
 Dwyer & Carey—926 East 167th St  
 Ellerbrock Herman H—379 East 138th St

Evans & Kaestner—939 Intervale Ave  
 Hinners F J Jr—585 East 135th St  
 Johnson Emil—1727 Popham Ave  
 Kips John—161st St and 3d Ave  
 Kirschoff C Arthur—813 East 163d St  
 Landy Jacob—673 Elton Ave  
 Mangam H I & Co—333 East 162d St  
 Ross E L—356 East 138th St  
 Ryan Geo E—603 Tremont Ave  
 Schwarzler M & Son—460 E 167th St  
 Sladek F—3440 Third Ave  
 Vielberth Jos F—1243 Taylor Ave  
 Woods Lewis H—2355 Jerome Ave

### Yonkers

Excelsior Gas & Elec Fixture Co—42 Warburton Ave  
 Imrie & Underhill—Bronxville N Y  
 Nugent A W Co Inc—83 Warburton Ave  
 Seaboard Elec Co—32 N Broadway  
 Westchester Elec Equip Co—15 Nepperhan St  
 Youmans Electric Co—2 Hudson St

## MANUFACTURERS AND AGENTS

### Arc—Mercury Vapor Lamps

Adams Bagnall Electric Co—40 Wall St  
 Bell Arc Light Co—213 Grand St  
 Cooper Hewitt Elec Co—730 Grand Street Hoboken N J  
 Eclipse Arc Light Co—13 East 30th St  
 Excella Arc Lamp Co—30-32 East 20th St  
 General Electric Co—30 Church St  
 General Illuminating Co—369 Broadway  
 Hallberg J H—36 E 23d St  
 Lord Mfg Co—213 West 40th St  
 Main Electric Co Inc—716 7th Ave  
 Nernst Lamp Co—105 West 40th St  
 Stave Electrical Co—131 Hudson St  
 Toerring C J—39 Cortlandt St  
 Western Elec Co—463 West St and 17 Murray St  
 Westinghouse Elec & Mfg Co—165 Broadway

### Buffers—Polishers—Electro-Dental Machinery

Green Electric Co The W—81 Nassau St  
 New York Elec Tool Co—136 Liberty St  
 Trenaman Dental Manufacturing Co The—114 Maiden Lane  
 Wappler Mfg Co—173 E 87th St

### Coffee Mills

Deer Co A J—55 West 63d St  
 Hobart Electric Mfg Co—24-26 East 21st St

### Dealers in Second-hand Machinery

Cutter Co F B—50 Church St  
 Graham Jas A—39 Cortlandt St  
 Thompson Joseph H Jr—30 Church St

### Decorative Lighting

Elbight Co of America—120 West 31st St  
 Gudeman & Co—24 West 33d St

### Electric Automobiles

Anderson Electric Car Co (Detroit Electric)—2236 Broadway  
 Atlantic Motor Truck Co—Times Building  
 Baker Vehicle Co—1798 Broadway  
 Bronx Electric Vehicle Co—11 Canal Place  
 Columbia Motor Car Co—3 West 61st St  
 Couple Gear Co—149 Broadway  
 Electric Omnibus Corp—39 Cortlandt St  
 Flanders Mfg Co—932 Broadway  
 General Motors Truck Co—236 West 59th St  
 General Vehicle Co—505 Fifth Avenue  
 Gould Storage Battery Co The—418 E 55th St  
 Healey & Co—1654 Broadway  
 Hupp-Yeats Electric Car Co—1989 Broadway  
 Lansden Co—233 High St Newark N J  
 Rauch & Lang Carriage Co—58th St & Broadway  
 Studebaker Automobile Co—136 West 52d St  
 Walker Vehicle Co—30 Church St  
 Ward Motor Vehicle Co—1161 Broadway  
 Waverley Co—2008 Broadway

### Electric Vehicle Mechanical and Battery Parts

Acme Electric Garage—410 East 32d St  
 Baker Motor Vehicle Co—235 West 56th St  
 Beecher's Garage—561 Pelham Ave  
 Dakota Stables—200 West 77th St  
 Electric Storage Battery Co The—100 Broadway  
 Geisler Bros Storage Battery Co—514 West 57th St  
 Gould Storage Battery Co The—418 E 58th St  
 Hoyt & DeMallie—55 West 93d St  
 Mutual Taximeter Cab Co—250 W 80th St  
 N Y Trans Co—8th Ave & 49th St  
 Phila Storage Battery Co—American Building B'way and 58th St  
 Proud & Co T I—114 West 54th St  
 St Nicholas Auto Co—54 West 67th St



## MANUFACTURERS AND AGENTS (Continued)

Storage Battery Supply Co—239 East 27th St  
U S Lighting & Heating Co—210 West 50th St  
Victor Auto Storage Co—118 West 56th St  
Willard Storage Bat Co The—136 West 52d St

### Electric Heating and Cooking

American Elec Heater Co—Detroit Mich  
Copeman Electric Cook Stove Co—17 Battery Pl  
Cutler Hammer Co—Times Building  
General Electric Co—30 Church St  
Hughes Electric Heating Co—1161 Broadway  
Pacific Electric Heating Co—136 Liberty St  
Pelouze Electrical Heater Co—20 Park Place  
Phelps Mfg Co—84 Walker St  
Prometheus Electric Co—236 East 43d St  
Reimers Electric Heater Co—18 Reade St  
Rex Sales Co—90 West St  
Simplex Electric Heating Co—25 West 42d St  
Westinghouse Elec & Mfg Co—165 Broadway

### Electric Signs

Agents & Hopper—219 Market St Newark N J  
American Sign Co—200 5th Ave  
Bohnger Bros—146 East 42d St  
Electric Carriage Call & Specialty Co—173 Christopher St  
Empire Elec Sign Co—162 East 118th St  
Federal Elec Sign System—220 West 42d St  
Globe Elec Spec Co The Inc—303 West 42d St  
Globe Co O L—Broadway and 22d St  
Hughes Thos—25 East 14th St  
Martin P J—1580 Broadway  
National Elec Sign Co—61-63 Hudson St Jersey City N J  
Phelps Mfg Co—84 Walker St  
Opal Sign Co—344 Broome St  
Reynolds Elec Flasher Mfg Co—1123 Broadway  
Rice George H & Co—481-487 Sterling Place Brooklyn  
Strauss & Co Inc—442 West 42d St  
Universal Elec Stage Lighting Co—240 West 50th St

### Elevators—Dumb Waiters

American Elevator Co—113-115 Cedar St  
Burdett-Rowntree—50 Church St  
Electric Elevator & Machine Maintenance Co—1 Beekman St  
Hottiman Co Chas W—223 West 58th St  
Gurney Elevator Co—62-4 W 45th St  
Otis Elevator Co—17 Battery Pl  
Pratt Constr Eng Co Chas R—1123 Broadway  
Reedy Elevator Co—202 Ninth Ave  
Roberts Jas H—430 West Broadway  
Seigwick Machine Co—128 Liberty St  
See A B—220 Broadway  
Walter Elev Mfg Co—Cincinnati O  
Wheeler McDowell Elev Co—417 Canal St

### Fans, Blowers and Air Compressors

Adams Bagnall Co—40 Wall St  
Diehl Mfg Co—90 Prince St  
Garner Ventilating Co—140 Liberty St  
General Electric Co—30 Church St

Ilg Elec Vent Co—13 Park Row  
National Brake & Elec Co—111 Broadway  
Robinson & Myers—145 Chambers St  
Sprague Electric Works—527-531 West 34th St  
Sturtevant B F Co—50 Church St  
Westinghouse Elec & Mfg Co—165 Broadway  
Wing Mfg Co L J—90 West St

### Fixtures

Adams Bagnall Co—40 Wall St  
Aetna Electric Co—258 Broadway  
Benjamin Elec Mfg Co—27 Thames St  
Caldwell Edward F—36-40 West 15th St  
Dale Co The—9th Ave 13th & Hudson Sts  
Enos Co—36 West 37th St  
Gleason Mfg Co E P—37 Murray St  
H W Johns-Manville Co—100 William St  
McCoy J B Elec Fixture Co—114 West 30th St  
Mayer & Co Leon—1304 Boston Road  
Mitchell Vance Co The—830 838 Broadway  
Morris Iron Co—90 West St  
Roeser & Sommer Co—386 Second Ave  
Shapiro & Aronson—20 Warren St  
Simms Co The—20 Rose St  
Sterling Bronze Co—107 13 West 25th St  
Tungstolier Co The—27 East 21st St  
Western Elec Co—403 West St and 17 Murray St

### Globes Reflectors

Frank I P—239 241 10th Ave  
Gillender & Sons Inc—40 West Broadway  
Haskins Glass Co The—76 Park Pl  
Holophane Co—36 West 30th St  
Jefferson Glass Co—42 Park Pl  
Macbeth Evans Glass Co—19 West 30th St  
Opalux Co The—258 Broadway  
Phoenix Glass Co—15 Murray St  
Weeks Nelson—217 William St

### Motors—General Uses

Allis Chalmers Co—71 Broadway  
Archer & Baldwin—114 Liberty St  
Bell Electric Motor Co—30 Church St  
Bender Geo—82 84 Centre St  
Burke Elec Co—30 Church St  
Century Electric Co—30 Church St  
Crocker Wheeler Co—30 Church St  
Diehl Mfg Co—90 Prince St  
Eck Dynamo & Motor Co—19 Murray St  
Electro-Dynamo Co The—11 Pine St  
Emerson Elec Mfg Co The—30 Church St  
Fairbanks Morse & Co—30 Church St  
Et Wayne Electric Works—30 Church St  
Garwood Electric Co—140 Broadway  
General Electric Co—30 Church St  
Haare Arthur W—10 East 42d St  
Holcomb D S—30 Centre St  
Holtzer Cabot Electric Co—83 Warren St  
Ideal Electric & Mfg Co The—30 Church St  
MacGovern & Co—114 Liberty St  
Mechanical Appliance Co—30 Church St  
Onoda Electric Co—300 West Broadway  
Peetness Electric Co—43 West 25th St  
Richmond Elec Co The—145 Chambers St

## MANUFACTURERS AND AGENTS (Continued)

Rival Sewing Mach & Elec Motor Co—547 West Broadway  
 Robinson & Myers—145 Chambers St  
 Rossiter-MacGovern & Co—90 West St  
 Sprague Electric Works—527 West 34th St  
 The Triumph Electric Co—30 Church St  
 Wagner Elec Mfg Co—30 Church St  
 Western Elec Co—463 West St and 17 Murray St  
 Westinghouse Elec & Mfg Co—165 Broadway

### Motor Inspection—Maintenance— Repairs and Care of Flaming Arcs

Borne Chas A Co—62 Grand St  
 Conlan Electric Co—43 Murray St  
 Elec Motor Insp & Rep Co—1 Beekman St  
 Graham Bros Co—662 Hudson St  
 Lord Electric Co—213 West 40th St  
 Maintenance Co The—417 Canal St  
 National Electric Co—89 Centre St  
 Naumer Elec Co—82 Gold St  
 Naylor & Newton—243 Canal St  
 Reilly's James Sons Co—122-130 Centre St  
 Weiderman Geo Elec Co Inc—35-37 Rose St

### Office Accessories

Edison Business Phonograph—Orange N J  
 Ensign Elec Calculating Machine—261 Broadway  
 "The Millionaire" Electric Calculating Machine  
 1 Madison Ave

### Pumps

D'Olier Centrifugal Pump & Machine Co—  
 Philadelphia Pa  
 Goulds Mfg Co—16 Murray St  
 Holland Machine Co—51 Cliff St  
 Platt Iron Works The—50 Church St  
 Quimby William E Inc—3 West 29th St  
 Rider Ericsson Engine Co—35 Warren St  
 Rumsey Pump & Mach Co—75 Warren St  
 Watson Stillman Co—50 Church St

### Refrigeration

Brunswick Refrigerating Co—30 Church St  
 De La Vergne Machine Co—Foot of E 138th St  
 Triumph Ice Machine Co—30 Church St  
 United Refrigerator & Ice Machine Co—50  
 Church St—Room 1778  
 Voss Ice Mach Works—242-252 East 122d St  
 Westerberg & Williams—60 West St  
 York Mfg Co—72 Trinity Place

### Switch and Distributing Boards

Anderson Mfg Co A & J M—135 Broadway  
 Automatic Switch Co—131 Liberty St  
 Columbia Metal Box Co—226 East 144th St  
 Crouse Hinds Co—30 Church St  
 General Electric Co—30 Church St  
 Krantz Mfg Co—100 7th St Brooklyn  
 Metropolitan Elec Mfg Co—East Ave & 14th  
 St L I City  
 Metropolitan Engineering Co—1240-1250 Atlantic  
 Ave Brooklyn  
 National Switchboard Co—534 West 58th St  
 Pringle Elec Mfg Co The—39-41 Cortlandt St

Rall Frederick—19 Park Pl  
 Sprague Electric Works—527 W 34th St  
 Trumbull Electric Mfg Co—114 Liberty St  
 Wirt Electric Co—97 Warren St

### Vacuum Cleaners

Buffalo Vacuum Cleaner—116 Nassau St  
 Cadillac Sales Co—1260 Broadway  
 Duntly Mfg Co—202 Fifth Ave  
 Electric Cleaner Co—1 East 41st St  
 Eureka Vacuum Cleaner Co—59 Warren St  
 Everson Vacuum Cleaner Co—45 West 34th St  
 Federal Sign System (Electric)—229-231 W 42nd  
 St  
 Hoover Electric Suction Sweeper Co—Mar-  
 bridge Bldg Broadway & 34th St  
 Modern Devices Inc—546 Fifth Ave  
 National Brake & Electric Co—111 Broadway  
 Rosentfield Mfg Co—587 Hudson St  
 Spencer Turbine Cleaner Co—1182 Broadway  
 The Cleanator—39 Cortlandt St  
 The McCrum Howell Co—Park Ave & 41st St  
 The Monarch Vacuum Cleaning Co—1151 Bway  
 The Regina Co—47 West 34th St  
 The Vortex Vacuum Cleaner—Boston Mass  
 Thurman Vacuum Cleaner Co—358 Fifth Ave  
 Vacuna Sales Co—259 Fifth Ave  
 Vacuum Engr Co—114 Liberty St  
 Vacuum Process Renting Co—2628 Broadway

### Vibrators and Hair Dryers

Eureka Vibrator Co—131 W 42nd St

### SUPPLY DEALERS

Atlas Elec Co—1727 3d Ave  
 Bonnell W A Co—132 Church St  
 Broadway Elec Novelty House—421 Broadway  
 Brown Wm S—3 West 29th St  
 Bunnell & Co J H—20 Park Place  
 Burnet Co The—69 South St & 1800 Park Ave  
 Chapin Chas E—201 Fulton St  
 Central Electrical Supply Co—29 West 15th St  
 Fletcher Stanley Co—32-34 Frankfort St  
 Fullerton Electric Co—109-115 West 26th St  
 Irish Elec Co W F—60 Cortlandt, 111 W 125th  
 and 161 West 34th, 35-7 East 10th St  
 Killoch Co David—193 Greenwich St  
 Latham & Co E B—4 Murray St  
 Lee Co, J Fred—40 East 20th St  
 Leveridge Chas W—183 Greenwich St  
 Manhattan Electric Supply Co—17 Park Pl, 14  
 Murray St, 110 West 42d St, 37 West 125th St  
 N W Elec Equip Co—1250 Atlantic Av Brooklyn  
 Ostrander W R—22 Dey St  
 Roberts & Bros Geo I—471 Fourth Ave  
 Royal-Eastern Elec Sup Co—114 West 27th  
 St—506 Willis Ave—Bronx  
 Sibley & Pitman—29 Warren St  
 Stanley & Patterson—23 Murray St, 27 Warren  
 St, 329 Fourth Ave  
 Thomas & Betts Co—299 Broadway  
 Universal Cutter Co—130 West 25th St  
 Western Elec Co—463 West St and 17 Murray St  
 Wood C D Jr—136 Liberty St











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